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St. J. B. GRAHAM, M. D.,
W. E. FITCH, M. D.,
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An era is fast approaching, when no writer will be read and appreciated by the great majority, save and except those who can effect that for bales of manuscript, that the hydrostatic screw performs for bales of Cotton by condensing that matter into a period that before occupied a page.—COLTON.

ORIGINAL COMMUNICATIONS.

TYPHOID PERFORATION,*

ITS FREQUENCY, PROGNOSIS, DIAGNOSIS AND TREATMENT.

BY HUGH M. TAYLOR, M.D.,

Richmond, Va..

Professor of Practice of Surgery and Clinical Surgery, University College of Medicine, Richmond, Va.; Surgeon to Virginia Hospital, etc.

If the statistics herewithin are even approximately correct they will sustain the conclusion that in the surgical treatment of typhoid perforation we have a field but little less in extent and importance than that of localised tuberculosis, appendicitis or even cancer.

Frequency of Perforation.—In the United States Census report, 1896, typhoid fever is credited directly and indirectly with an annual death rate of 75,000. In the United States Marine Hospital report for 1896, page 1008, it is claimed that there are 500,000 cases of typhoid fever each year in the United States and 50,000 deaths.

If I am not mistaken the usual death rate from typhoid fever has been from 10 to 18 per cent. It is true the census for 1900 reports a decreased death rate from typhoid fever, but recently I have seen a statement credited to Dr. Hare in which he claims that the world over the deaths from typhoid fever will amount to 15 per cent. Numerous reports with a very much smaller death rate are frequently published, but not unfrequently it is in connection with and to support the efficacy of some special plan of treatment.

Ten per cent. of 500,000 is 50,000, while 15 per cent. is 75,000. Think of it, 75,000 deaths from typhoid fever in the United States alone each year.

* Read before the Annual Meeting of the Medical Society of Virginia, Nov. 7th, 1901.

The United States Census reports and that of the Marine Hospital service represent more accurately the death rates in the cities and towns. To a large extent reports from the rural districts are not available. Are these statistics correct? They are the very best we have and must be our guide until better information can be obtained. If we recall the fact that so many cases of atypical typhoid fever are diagnosed as typho-malarial fever, bilious, gastric and malarial fever, as intestinal indigestion, etc., it is reasonable to conclude that the estimate as to the frequency of typhoid fever is an under-estimate rather than excessive. The estimated mortality in typhoid fever is based upon a study of the statistics from cities and large towns. In view of the fact that trained nursing is not so frequently available in the rural sections and frequent daily visits by the attending physician often impracticable, is it not logical to suppose that the death rate in the rural districts is larger and hence the death rate credited to typhoid fever is larger than special statistics would indicate?

Frequency of Perforation.—Dr. Osler, in a paper published in the Philadelphia Medical Journal, January 19, 1901, claims that 33⅓ per cent. of the deaths from typhoid fever are due to perforation and 20 per cent. to hemorrhage.

In an editorial in the Philadelphia Medical News of November 11, 1899, again we find it emphasized that one-third of the deaths from typhoid fever are due to perforation and 20 per cent. to hemorrhage. If we grant that we have 75,000 deaths from typhoid fever each year in the United States and further, that 33⅓ per cent. are due to perforation, we have the startling fact that 25,000 people die annually in the United States from typhoid perforation. Grant that 10 per cent. is the maximum death rate from typhoid fever the world over, 50,000 would be approximately the number of deaths each year in the United States and one-third, or 16,666, the number of deaths from perforation.

Is it an error to claim that one-third of the deaths from typhoid fever are due to perforation? If it is, it is one that has been given marked publicity and as far as I know the assertion has passed unchallenged. In discussing the frequency of typhoid fever and the frequency of perforation with my professional colleagues, so invariably the comment has been made, "Doctor, those statistics are not correct," I confess when I first viewed them as I have them grouped, I was myself astonished and skeptical. Shall we accept them? We must, if we cannot correct them. No such experience has been met with in my practice, a number of good men have assured me. Is it not more likely that the cases were met with but were not recognized? If, fifteen years ago, I had been asked as to the frequency of appendicitis, gastric ulcer, gall stones, etc., I should at that time have given a very different reply from that which my experience and study would now warrant me in giving.

My honored kinsman, Dr. Hunter McGuire, was once asked how he found so many cases of stone in the bladder. "I look for them" was his laconic reply. We are likely to find what we are looking for. At a time when I treated more cases of typhoid fever than I do now, I can recall cases that I am convinced had perforation but such a condition was not suspected at the time. Curiously enough two of the cases operated upon by me were promptly diagnosed by young men who had just graduated and who had but recently had this subject impressed upon them.

Prognosis.—What has been done? What can be done? We need not stop to consider the medical treatment of perforation, if there is any such it is beyond the limits of our present knowledge. Even if we grant the possibility of prompt localized peritonitis and walling in of the perforation, it is so exceedingly improbable that it should not for one moment be considered.

The difference between the bowel lesion in a bullet wound and a typhoid ulcer is marked in this—the mucosa and muscularis in the latter case are destroyed over a much wider area than is the peritoneal and there is no possibility of plugging the hole by a prolapsed mucosa. Of course, it is possible to have local peritonitis and adhesions prior to perforation, and in this way not infrequently the serous sac is protracted. In complete perforation we should recall that in a vast majority of instances its site is in the small bowel near the ileo-cæcal junction, and further that only fluid contents are found in the small intestine. There is often distension of the bowel and the active peristalsis lessens the probability of adhesions. As far as we know such cases, *i. e.*, complete perforation, treated medicinally can do no better than give us a mortality of 100 per cent. The few cases of recovery reported were in our opinion cases of local peritonitis and incomplete perforation.

From this gloomy picture of the medical treatment let us turn to the brighter view afforded by the surgical treatment of these perforations. Dr. Keen in one of his masterly papers on the surgery of typhoid fever urges that the profession needs to be aroused to a due appreciation of what surgery has done and can do in this new field, and concludes a paper before the N. Y. State Society, October, 1899, as follows: "The profession at large must be aroused to the possibility of a cure in nearly if not quite one-third of the cases of perforation provided speedy surgical aid is invited."

Dr. Cushing (Annals of Surgery, 1901) says: "The analogy between this condition and that encountered in appendicitis is very striking. Here the earlier the operation the better the results so far as life goes. Watching all typhoid patients for any abdominal signs, the attending physician will be able to call in the surgeon early enough to make statistics of those saved among all fully fifty per cent. by early exploration."

Dr. E. C. Register of Charlotte, N. C., reports in a hospital in Japan the chief surgeon has done seven laparotomies for typhoid perforation and saved three.

It is possible to save one-half of the cases of perforation if the severe cases are watched carefully for symptoms of perforation and operated upon early, says Dr. Osler, Twenty-five per cent. of good and bad cases have been saved, many of them eleventh-hour and forlorn hope operations, as were some of my own. Thirty-seven per cent. of a series of cases operated upon at the Johns Hopkins have been saved, and such men as Osler, Cushing, etc., anticipate fifty per cent. of recoveries.

Twenty-five thousand deaths from typhoid perforation in the United States and a probability of saving from 30 to 50 per cent! Thirty per cent. of 25,000 is 7,500. That number, 7,500 cases of typhoid perforation, should be saved in the United States alone each year, and if the promises are fulfilled and we are able to save fifty per cent. of 25,000 we will have a grand achievemeut—12,500 lives saved. In Philadelphia in 1898 there were between 5,000 and 6,000 cases of typhoid fever reported; many so-called billious, malarial, typho-malarial, etc., were atypical typhoid. Ten per cent. death rate of 6,000 is 600 deaths. One-third due to perforation is 200 deaths from perforation. Think of 200 cases in one year occurring right under the nose of Dr. Price, demanding an operation, 37 per cent. of which he could certainly have saved. In 1897 there were 2,000 deaths in New York State, one-third or 666 cases of perforation. No diversity of opinion can exist as to the duty indicated in such cases. The diagnosis having been made, masterly inactivity is criminal and an intelligent profession should hold us *particeps criminis* if we fail to impress the fact that surgical intervention alone can save the patient and by such a fair prospect is afforded.

Diagnosis.—It has been duly impressed that more mistakes are made in diagnosis than in practice and that the mistakes in practice are commonly due to errors in diagnosis. It is conceded that in this as in so many phases of abdominal surgery we need greater proficiency in diagnosis far more than we do an improved operative technique. It is a serious matter to propose to open the abdomen of a patient depressed by typhoid fever, but it is a much more serious matter not to open it if there is perforation. Good men assure us that the tissues of such patients heal readily and that these patients are in no worse condition than so many cases with appendicitis, bullet wounds of the intestines, etc. The patient is inevitably doomed without it; probably one-half will be saved by it. In this as in all lesions entailing perforative peritonitis it holds that success largely depends upon getting into the abdomen early and out of it as quickly as is consistent with complete work.

The diagnosis of perforation on the one hand may be exceedingly obscure and on the other the clinical picture may be easily interpreted. The symptoms of typhoid fever are so variable; in a large number of fever cases the patients are perfectly clear mentally, they can warn us intelligently of the sudden onset of pain and can help us to decide when it is localized or diffused. In many the thermic

changes are gradual and no sudden rises or falls occur and the same is true of the pulse. In many, abdominal pain is absent and there may be no distension or rigidity. In this class of patients, and they are by no means a minority of cases, such a group of symptoms as vomiting, pain, shock, increased and increasing pulse rate, abdominal rigidity, distension and abolished peristalsis and gaseous movement, together with perhaps a reduced temperature incident to shock should enable us to make about as positive a diagnosis as is possible in a majority of acute intra-abdominal troubles. On the other hand in another group of cases in which there is mental apathy, not infrequent vomiting from impaired stomach digestion, distension from nerve exhaustion and intestinal indigestion, rapid pulse, high temperature, frequent paroxysms or persistent pain from peritoneal involvement without perforation, in such cases the diagnosis must call for an acute reading of the symptoms manifested.

I recall a recent experience of one of my colleagues. I regard him as a skilled diagnostician. He said to me, "I have a bad case of typhoid fever in the hospital; if perforation occurs do you want to operate?" I said certainly. A few days later one of the internes said to me, "Doctor, that patient died; I opened the abdomen and such a quantity of pea-soup-like stuff poured out I shut it up again." Obviously the pea-soup material was small bowel contents and perforation was evident. A very short time after this another patient died from typhoid fever in the service of my good friend. A complete post mortem in this case showed two perforations and several ulcers with only the peritoneal coat intact. I mention these cases as evidence of the fact that exceptionally clever diagnosticians even while on the lookout for perforation may fail to detect its occurrence.

Dr. Senn has timely impressed the idea that one of the dangers of the hour is too much specialism. Doctors, he thinks, are too exclusively doctors, and surgeons too exclusively surgeons. We should adhere to the idea that a surgeon is nothing more or less than a doctor who operates. As a diagnosis in such cases must as a rule first be made by the attending physician, the injunction of Dr. Keen that the interest of the profession in this subject needs to be aroused, holds with especial force to the family physician.

We should recall that the perforation is more common in the third week, that it is not uncommon in mild cases, and that the perforative stage is noted by undue persistent local pain. In any case the occurrence of pain is a danger signal which should at once attract attention.

Dr. Osler in dealing with the diagnosis of perforation impresses the importance of more carefully watching the patient to detect the earliest indication of perforation. His instructions are so specific and clear that we feel warranted in reproducing them:

"I. Instructions should be specific and definite to the superintendent or head nurse to notify the house physician of any complaint of abdominal pain by the patient, of hiccough or vomiting, of a special rise of pulse, or respiration. of sweating or of signs of collapse.

II. House physician should note the character of the pain, as to (a) onset, whether only an aggravation of slight abdominal pain such as is common with both constipation and diarrhœa, or whether it was a sudden intense pain which caused the patient to call out, and which though relieved by stupes and ordinary measures soon recurred in paroxysms and grew worse. (b) The locality whether diffused or localized in the hypograstric or right illiac regions, radiation as to penis. It is to be borne in mind that abdominal pain of severe character may be associated with an acute pleurisy, with distended bladder, with cholecystitis, and with a packed rectum, or may follow an enema.

III. State of the abdomen. The condition to be noted in writing at once as to the following particulars: (a) Whether flat or scaphoid or distended; whether, if distended, it is uniform or chiefly hypograstric. (b) Respiratory movements, whether present, if uniform and seen both below and above the navel. (c) Palpitation, as to the tenderness and pain, locality and extent and degree of pressure necessary to elicit muscle rigidity and spasm, whether pressnt or not, and in what special locality and noting particularly its absence or presence in the hypograstic region and the right iliac fossa. (d) Percussion, character of note in front of abdomen and in flanks. Liver, flatness. extent, in middle, nipple and in mid-axillary lines. Note specifically every third hour. Remember too that obliteration may occur in a flat as well as in a distinded abdomen. Auscultory percussion may be helpful. (e) Auscultation obliteration of signs of peristalsis; presence of friction. (f) Examination of rectum and bladder. (g) Stools, character, frequency, presence of blood or slough.

IV. General condition of patient. (a) Face, whether changed in expression, rises, slight or marked, pallor, sweating, etc. (b) Pulse change, in rhythm, rate and force. (c) Temperature, whether a drop or not, whether after a tub or not. (d) Respiration, sudden increase, not infrequent whether shallow or sighing. (e) Sweating, if subject to during attack; if onset with pain; whether local or diffuse. (f) Vomiting, whether with onset of pain or not, character of vomiting. (g) Hiccough.

V. Blood count, leucocytosis, stationary or rising—may be marked early. In a majority of well followed cases there is a rise. The constant leucopemia in typhoid fever has to be taken into account, also a count of the red blood corpuscles and hæmoglobin, as a decided drop might suggest hemorrhage."

Much of this useful advice given by Dr. Osler can be applied to the sick room outside of the well-appointed hospital, but to a large extent it is only serviceable with a trained corps of assistants.

One of the most important papers of recent date is the report of Drs. Shattuck, Warren and Cobb (Progressive Medicine, June, 1901) as a Committee of the Boston Society for Medical Improvement. Seventeen cases were embraced in this report. Curiously enough,

says the report, "the text books still continue to describe the symptoms of perforation as though a sudden marked change in the picture took place, with severe abdominal pains, general collapse and abdominal rigidity. This certainly is not the case in patients seen at the beside and the study of this series shows that only in seven out of twenty-one was there a sudden and severe onset of symptoms due to perforation, and from this series the authors conclude that the severe symptoms described in these text-books are due, not to the occurrence of perforation, but to the onset of septic peritonitis, resulting from the accident." Some of the conclusions arrived at are—

I. In many very sick typhoids, perforation or peritoneal infection cannot be diagnosed until the results are already widespread and of fatal extent.

II. In mild typhoids of fair general condition an abdominal opsration is readily borne provided no peritoneal infection is present.

Dr. Rodman of Philadelphia has recently reported a successful case in which he did not operate 36 hours after perforation."

III. Operations may be done at once, for general infection may become past relief in from one to five hours, and walling off of the perforation by protecting adhesions is so rare as not to be counted upon.

IV. In the majority of mild cases beginning infection—whether from perforation or not—is marked by comparatively slight symptoms—local pain, tenderness, spasm and leucocytosis. The severe following symptoms mean general peritonitis.

V. These warning symptoms demand serious consideration and study, but in many cases are either not rightly understood or not acted upon.

VI. Complaint of abdominal pain in a case of typhoid should always lead to a suspicion of beginning peritoneal infection.

VII. Frequent lecocyte counts are needed in every case of typhoid. In the presence of abdominal pain an hourly count is necessary.

VIII. Pain associated with local tenderness, muscular spasm and a rising white blood count, points in most cases to an operation ; in all cases to a surgical consultation.

IX. In not a few of this series of cases operation was imperative a varying number of hours before it was done. It will be seen in this report but little has been brought out which will help us in making a diagnosis at the bedside.

In bullet wounds of the intestines we have no reliable symptoms until the advent of peritoneal infection. The character and location of pain, the existence or absence of shock, increased temperature, pulse rate, hepatic area of resonance in place of flatness, etc., furnishes a guide of but little value. We can only know there has been an intestinal wound by an exploratory incision.

Greig Smith, J. B. Murphy and Osler have all impressed the idea that an abolished peristalsis and cessation of gaseous movement point to perforation. Murphy and Greig Smith notably regard this evidence as of great diagnostic value.

My experience prompts me to attach most importance to (a) pain, (b) muscular rigidity, (c) inhibited peristalsis. As we have outlined, we need greater proficiency in diagnosis far more than an improved technique. When we operate and how to operate need not detain us.

If there is shock from perforation a majority of operators will wait for reaction; others contend that every hour's delay means more extravasation of intestinal contents. If there is no shock or when the shock is not dangerously profound, immediate operative intervention is indicated. Dr. Keen's statistics show that a large number of cases recovered when the operation was done in about twelve hours after perforation—presumably after reaction from primary shock but before the advent of shock of sepsis. The operative technique does not differ from that indicated in other acute peritoneal infections. We should bear in mind that the perforation is usually single, and is more frequently within the last 18 inches of the small bowel.

In conclusion, let us reiterate that this is an extensive field, full of good fruit, which we trust will soon be classified by the busy pathfinders whom we are privileged to follow.

A REPORT OF TWO CASES OF "EOSINOPHILIA," WITH REMARKS UPON THE EOSINOPHILE CELLS OF THE BLOOD.

By JNO. R. HICKS, M. D.,
Cont. Surg. U. S. A.,
Fort Screven, Tybee Island, Ga.

It is not the purpose of this paper to review the great amount of literature which has been written upon the eosinophile cells of the blood, but simply to report the following cases and incidentally to show that it is not necessary to stain the blood in order to differentiate between the eosinophile cells and the other varieties of leucocytes.

Case I.—Private W. J. M., 1st U. S. Artillery, reported November 12th, 1899, complaining of a sore toe. By microscopic examination I found a streptococcus infection of the great toe of the left foot. The toe was swollen, tense, throbbing and painful. After cleansing the ear, I prepared specimens of blood for staining in the usual way.

The first day's count, while the inflammation was at its height, was the following, giving the percentage of eosinophile cells to all other leucocytes:

1st count of	100	gave	18%	eosinophile	cells.	
2nd	"	"	17%	"	"	
3rd	"	"	19%	"	"	
4th	"	"	20%	"	"	
5th	"	"	18%	"	"	
Average for	500	"	18.5%	"	"	

On the second day of the abscess, when the toe was much better, the percentage of eosinophile cells was 12 in a count of 500. On the third day the eosinophiles averaged 9 per cent. On the fifth day, when the toe was well, the eosinophiles averaged 8 per cent.

Two or three days after the patient had entirely recovered I prepared a specimen of blood in the usual way and found the average of eosinophile cells had risen to 12 per cent. of the whole number of leucocytes.

By examination I found there was no re-infection of the toe and the patient said he "was never better" in his life, except that he was anxious and nervous about his wife, whom I had delivered of a child two nights before.

It is not necessary to stain the blood in order to detect and count the eosinophile cells. I have been able to count them in cases of malarial fever, but as no suitable case of eosinophilia presented itself for study I have had to wait until the following occurred:

Case II.—Private R. H. G., Battery "C" 2nd U. S. Artillery, was admitted to the hospital March 31st, 1900, with a typical case of parotitis (on both sides) contracted in Montgomery, Ala. After running a typical course the disease subsided, and the patient was returned to duty April 12th, 1900.

April 16th—He was readmitted to the hospital, complaining of headache, thirst and passing more water than normal. He was nervous and much frightened about himself; face flushed, temperature normal, pulse 120, soft and compressible. He was constipated and had severe cramps in the calves of his legs. There were no signs of syphilis, and patient said he had never had any venereal disease. Uses tobacco excessively.

Examination of the urine April 20th showed amount very much increased (4400 c.c. in 24 hours), light watery appearance, specific gravity 1001, no albumen, no sugar, no peptones, no casts, and neutral reaction.

April 21—Urine practically the same as the day before, but general condition slightly better.

April 22—Urine and general condition unchanged.

Blood count, red cells, 5,480,000; white cells, 8,500; hemoglobin, 90 per cent. In the fresh specimen the red cells were normal and the differential count of the white cells could not be made, with the following exception: I would find coarse granular polynuclear cells; their granular structure was marked, while the nuclei could only be seen in outline, being mapped out by the large, coarse, semi-opaque granules between them. The other cells were of normal size; their

granular appearance was not marked, the granules being small and nearly transparent, and the outline of the nuclei could easily be detected. Often in the field of the microscope the large and small granular cells were found side by side, thus affording a good opportunity for comparison. The differential count between these coarse, granular white cells, and all the other white cells, gave, in a 500 count, 205 or 41 per cent.

Now, to confirm this percentage of the eosinophile cells, a specimen was stained with eosin three-fourths per cent. solution in 60 per cent. alcohol, and afterwards with a saturated aqueous solution of methylene blue, with the result that in a 500 count the percentage of eosinophiles was about 40. This count more forcibly demonstrates the importance of the mechanical stage and the use of different lights with which to recognize the granular structure of the cells by a more extended use of the diaphragm of the microscope.

The patient began taking codein in increasing doses, with the following changes in the blood count (with and without stain):

April 26th.....24% eosinophiles without stain.....23% with stain.
April 28th.....15% " " " .....17% " "
April 30th .....13% " " " ..... 12% " "
May 1st.....20% " " " .....21% " "

May 1st—Patient had a severe headache all day, passed 4,200 c.c. of watery urine, feebly acid, specific gravity 1008.

May 6th—Patient improved; did not pass as much water and eosinophile count without stain was 84 per cent., 7 per cent. of the whole number of leucocytes.

May 8th—Patient was not so well. He has a good deal of pain in passing urine and passed 4000 c.c. during the 24 hours. Blood count without stain was 9 per cent., with stain 10 per cent.

May 10th—Codein was stopped for two days, and May 12th the patient complained of headache, pain on urination and loose bowels, but had no fever. Blood count without stain 18 per cent. eosinophiles, with stain 15 per cent. (Here, I think, the difference in count was due to the fact that the specimen did not stain well.) For codein I substituted potassium iodide, which was pushed to the limit with no effect upon the percentage of eosinophile cells. On May 19th codein in 12 gm. doses was given again.

May 21st—Blood count without stain 11 per cent. eosinophiles, with stain 12 per cent.

May 24th—Blood count without stain 9 per cent. eosinophiles, with stain 8 per cent.

May 30th—Patient complained of thirst, headache, and pain on urination. Urine light, watery color, specific gravity 1008, very feebly acid and eosinophiles without stain 18 per cent., with stain 16 per cent. Patient was put on simple diet and given Fowler's Solution, 19 c.c., three times a day, to be increased to limitation, which, in this case, was ten drops.

June 5th—Eosinophiles with stain 8 per cent.; otherwise the patient has not improved.

Codein was then given in .32 gm. doses with the arsenic solution in .32 c.c. doses, three times a day, with the following blood count: Eosinophiles, 10 per cent.; polymorphonuclear neutrophiles, 52 per cent.; large lymphocytes, 14 per cent.; small lymphocytes, 24 per cent.

June 8th—Codein was stopped and arsenic was pushed to the limit until June 12th, with no effect whatever. The patient rapidly relapsed to his former condition. Urine, specific gravity 1001, watery appearance, 4000 c.c. passed during 24 hours. However, arsenic does seem to depress or modify the circulation in a way to check the formation or discharge of the eosinophile cells in the blood current; because while the urine was of low specific gravity, the eosinophile count was 10 per cent.; polymorphonuclear, 60 per cent.; large and small lymphocytes, 30 per cent.

Before arsenic was given the increase in percentage of eosinophile cells was almost in direct proportion to the lowness of the specific gravity of the urine.

June 10th—Patient had a great deal of pain on urination; had not slept during the night: slight headache, face flushed, pulse was rapid (120). Urine feebly acid, specific gravity 1001; after repeated examination I could not find albumen, sugar or casts.

June 12th—General condition of the patient about the same. Passed 5,000 c.c. of urine in 24 hours. Blood count as follows: Eosinophiles, 12 per cent.; large and small lymphocytes, 40 per cent.; polymorphonuclear neutrophiles, 48 per cent.

After careful examination and sounding for stone in the bladder, there was a negative result.

June 15th—Patient stopped arsenic and recommenced codein, taking it three times a day, with no change in the amount of urine or in his general condition, except the eosinophiles lessened slightly (eosinophiles 10 per cent.)

June 20th—Passed 4600 c.c. of urine, specific gravity 1002, nearly alkaline and burned very much when passed. There were no casts, albumen or sugar; eosinophiles, 9 per cent.; small lymphocytes, 35 per cent.; large lymphocytes, 8 per cent., and polymorphonuclear neutrophiles, 48 per cent.

June 24th—Condition about the same as on June 20th.

July 5th—There is no change in the patient either for better or worse since his admission to the hospital, except there is a material change in the number of eosinophile cells in the blood since first examined, as at this present writing the eosinophile cells number only 8 per cent. of the whole number of leucocytes. (I believe this change is rather indicative of an unfavorable prognosis.)

While this paper is intended more for a report than otherwise, it is also intended to show:

1st. The importance of blood examination in all cases.

2nd. That the eosinophile cells can be counted and well defined without staining (at least in one case).

3rd. The presence of eosinophiles in a case of diabetes insipidus which was most marked.

4th. That arsenic will diminish the number of eosinophile cells in the blood in some cases (if not all) of diabetes insipidus.

5th. That in this case I have made no special effort to count the other varieties of white blood cells without staining, but by a more extended use of the diaphragm of the microscope I believe the light effects may be so varied as to give a good idea of the physical characteristics of the other varieties of the white blood cells. If this be true, the very busy practitioner can more easily devote a short time to the examination of fresh blood in every case.

6th. That while the nomenclature of the white blood cells is very defective, I believe the best name for the so-called eosinophile cell is the "coarse granular oxyphile cell," to distinguish it from the "fine granular oxyphile" or polymorphonuclear cell, because both these cells take the eosin stain and can be distinguished from each other by their difference in granular structure.

7th. That it is interesting to note the marked tolerance of this patient for codein and arsenic.

THE ADVANTAGES OF THE X-RAY IN THE TREATMENT AS WELL AS THE DIAGNOSIS OF CERTAIN SURGICAL CASES.*

By M. F. CARSON, M. D.,
Griffin, Ga.

One of the most interesting features of medicine and surgery in this, the beginning of the new century, is the increasing interest in X-ray work, which is perhaps accounted for by a large number of our physicians and surgeons, remaining indifferent for so long to this important subject, beginning to appreciate its importance.

No surgeon who once having witnessed a high efficiency X-ray demonstration can fail to desire so valuable recourse. Observations upon fractures and dislocations by the aid of the X-ray has convinced eminent authorities of the necessity of many changes in our text-books, based upon the revelations of the ray.

In the examination of soft parts much valuable information has been gained. In presenting this paper I do not claim anything new or original, but desire to emphasize the importance of this valuable assistant in the diagnosis and treatment of certain surgical diseases. I desire to present the following cases for the purpose of demonstrating that in the X-ray we possess an accurate agent for diagnosing tubercular changes of lung tissue in its various stages. My first

* Read before the meeting of the Medical Association of Georgia, at Augusta, April, 1901.

case, male, age twenty-four, for several weeks had been losing flesh, accompanied by severe cough. Examination showed dullness of the upper lobe of the right lung with crepitant and subcrepitant rales. This patient expectorated freely very foul sputa which under the microscope showed pus in abundance. X-ray examination showed a distinct circumscribed area as large as an orange. Before a large tube glowing at its maximum of intensity, I introduced a long needle attached to an ordinary syringe guided by the X-ray, and withdrew considerable pus. Remembering Dr. Seneca D. Powell's address befere the Southern Surgical Association last year on how he used pure carbolic acid in abscesses, I resolved to try it in this case. I injected into the center of this dark area sixty minims of pure carbolic acid, followed in five minutes with double the quantity of pure alcohol. This operation I repeated every day for five days, withdrawing considerable pus each time. On the thirtieth day I examined this patient before the fluroscope to find this lung perfectly clear. I placed this patient on iron and cod liver oil. His cough has subsided and he has gained steadily. I have frequently examined this patient with the ray to find this once dark area perfectly clear. Physical signs show to-day a distinct cavity.

This you may consider heroic treatment. But I believe that by the injection of carbolic acid I produced a cavity and at least arrested the progress of a tubercular abscess. I consider it just as safe to inject pure carbolic acid into a tubercular lung as a tubercular abscess elsewhere, especially when we can regulate the degree of its effect by the use of alcohol.

I have frequently demonstrated the dark shadows in the incipient stage of tuberculosis, where the physical signs were negative.

While much has been written and claimed for the X-ray lately as a therapeutic agent in the treatment of tubercular disease of the lungs, skin and elsewhere, after a thorough test in both cases I am prepared to say that I do not believe the ray possesses any therapeutic properties, and that the alleged actions on germ diseases are only the result of the electrical current and other natural causes. I believe that any action that may reside in the ray is at our command in the well established currents of electricity.

Case No. 2.—Patient came into my office with a fracture of the humerus. The diagnosis was simple. I set these bones, applied splints, then examined with the ray to see if I had secured the bones in proper position. To my surprise I found the bones overlapping at least one and one-half inches. With the assistance of two negro men I made steady traction for several minutes, tightened my bandages, with the satisfaction that the bones were in good position. I have frequently examined this arm to find an absence of the usually large callus always found in fractures that were improperly set. I have set three fractures by this method ; have examined them afterward and found no callus or enlargement at point of fracture. I have examined five fractures set by the usual method. In every

case I found a large callus, which always interferes with the functions of the surrounding soft parts. In two cases of fractures of the tibia I found the bones overlapped at least one and one-half inches, in two cases of fracture of the humerus, I found the same condition, and in both cases a very large callus. I am satisfied that many cases of supposed injury to the nerves which develop late is the result of the pressure of a large callus so essential to union in overlapped bones. The value of the X-ray in office work is conspicuous in the detection of both fractures and dislocation, in the demonstration of integrity wherein fractures and dislocation do not exist, in the detection and localization of foreign bodies, in the diagnosis of growth composed wholly or in part of bone.

In recent fractures the exact position of the fragments before and after reduction can be made out. With the aid of an assistant a faulty adjustment may be rectified at once, displacements of the fragments may be discovered long before the time for reapplication of splints.

In old fractures the information to be gained by the X-ray is invaluable. Only in this way can we determine the position of the fragments and the point of impingment, and the cause of impaired function. There are many cases in which the fluoroscope gives vastly more important information than the photograph, because one sees in succession the parts from every point of view. Dislocations, old or new, can never be overlooked in fluoroscopy. In united fractures the situation of the bone is detected with ease. I recall one instance when the physician blamed himself and the patient—the physician for non-union of the humerus when a fluoroscopic examination showed the bones in correct position. Other not infrequent uses of the rays in general surgical work are the demonstration of bone diseases, exostoses, tumors, loss of substance, irregularities in contour cases, variations in size.

In one instance of an osteosarcoma, I detected the growth in its early stage. In tumors of bony origin, deduction based upon density are easily made.

Irregularities in outline from erosions, necrosis, bony deposits and all forms of bone disease attended by change of form, widen still further the scope of X-ray usefulness.

The following cases will serve to illustrate the advantage of the ray in examining soft parts for foreign bodies:

Case 1. Boy, age ten years, while out playing received from a parlor rifle a bullet wound of the belly. A physician was called in and diagnosed a serious condition, and explained to his parents what had probably happened to the intestines, as the bullet passed through the abdominal cavity. A consultation was suggested and another surgeon called in, and made the usual prognosis that if the little fellow lived three days he had a fighting chance. A few months later I examined this case before the ray, and found the ball safely resting in the muscles of the abdominal walls. It had passed obliquely about two inches from point of entrance.

Case 4. Young lady, age thirty, with discharging sinus to the left and on a level of the second lumbar vertebra. Three years ago this case was operated on by Dr. Willis Westmoreland for stone in kidneys. He cut for the left kidney, but failed to find it. He then traced the sinus across in front of the spine to the opposite side. A few weeks later I examined this case before the X-ray and found a large horseshoe-shaped kidney on right side with a small stone in its substance, with no shadow of a kidney on the left. This case, interesting from its very rarity and in that this patient had taken ether three different times for forty minutes each, with only one kidney, and it diseased.

Case No. 6. Young man received a bullet wound of the thigh, which entered on the lower outer side, struck the femur, glanced upward and inward and came within two inches of the surface on the inner side. The wound was never probed, but continued to ache and throb. On the tenth day I examined with the X-ray, located the bullet twelve inches and on the opposite side from point of entrance. I placed patient on table and with cocaine made an incision a little wider than the width of my scalpel and removed the ball. In a short time the wound healed.

Two weeks later patient came into my office complaining of a throbbing pain which seemed deeply seated, with slight elevation of temperature. I examined him with the ray and found a small spicula of detached bone, with a rough, uneven surface immediately surrounding it; guided by the X-ray I introduced the needle and withdrew considerable pus. Through this needle I injected one-half ounce carbolic acid, withdrew my needle. All symptoms subsided and I have frequently examined this patient to find no evidence of bone disease other than elevation of the united spicula.

THE ANTISEPTIC AND ELIMINATIVE TREATMENT OF TYPHOID FEVER.*

By T. VIRGIL HUBBARD, M. D.,

President Atlanta Society of Medicine; Assistant to Chair of Therapeutics, Atlanta College of Physicians and Surgeons.

In presenting this the third consecutive paper on the same subject to this Association, an apology might be necessary but for the fact that the truth cannot be repeated too often.

The modern tendency to investigate so closely the habits and pedigree of the different bacteria, it seems to me, is largely supplanting the investigation of the real condition of the patient, and it is a tendency against which the intelligence of the future will cry out in no uncertain terms.

It is generally admitted that we are constantly surrounded by a variety of these disease-producers; even the air we breathe, the

* Read before the Medical Association of Georgia, at Augusta, April, 1901.

water we drink and the earth we tread are but the natural habitats of these micro-organisms. Every human being probably carries within his own person some one of the different varieties of these germs in sufficient number to produce an infection, yet how many human beings go through a comparatively useful career without ever succumbing to their baneful influence. Now what does this teach? It means there are other factors in the production of this disease than the germ itself, and this factor, in my opinion, to a great extent is autointoxication—a practical fact which surgeons have recognized and heeded by a thorough preparation of their patient before an operation. They thoroughly purge the patient and see that his skin, kidneys and liver are acting freely, thus eliminating all of the effete material and chemical products of tissue changes constantly going on in the human organism.

Park, in his surgery, goes so far as to say that "in addition to purgatives, drugs like salol, charcoal and salicylates should be administered" as intestinal antiseptics. Many uremic accidents supervening after surgical operations may be atoned and the condition made to pass away by internal administration of naphthalene and charcoal.

Putrefaction of intestinal contents, to my mind, affords a most prolific source of autointoxication. If an attempt at intestinal antisepsis is so desirable before surgical operations, how much more so does it become in an acute infectious disease with its principal seat in the bowels. Here all the conditions favor putrefaction, the presence of bacteria, peptone, heat and moisture, with diminished biliary and intestinal secretions, as a result of fever. With the expectant or "do-nothing" plan of treatment and its accompanying constipation and tympanites, the result of putrefaction, the wonder to me is that more patients do not succumb to perforation and hemorrhage—and it certainly speaks volumes for the resisting power of nature.

In a bowel whose walls are already weakened by ulceration, common sense dictates that by allowing it to become filled with putrefying material, distended with gas as a result, we have the most favorable condition for perforation or rupture of the weakened wall of an artery. Compared to danger like this, the insignificant disturbance produced by mild purgation is but as "the roar of a meadow brook to the wild tumult of a mountain stream."

When we stop to think that there is enough poison produced in the human system in a few hours to destroy life if retained, it requires no prophetic vision to predict that the day is near at hand when the general practitioner will abide by the common sense rule of the surgeon and use the alimentary canal for what nature largely intended it—a sewer to drain from the system the toxins, effete material and other obnoxious products.

Nature intended the bowels to act in health, and if constipation is bad in health, it is worse in disease. It is superfluous to repeat

here what I have stated in previous papers, and that is, that I know that you cannot render the alimentary canal aseptic by the administration of drugs, but the man who fails to give some one of the intestinal antiseptics in typhoid fever is derelict in his duty; is not using the resources at his command for the benefit of his patient.

Dr. Osler, who has been the most outspoken opponent against this treatment, and maintained that intestinal antiseptics were useless and should not be administered in typhoid, at the same time highly extols Urotropin to disinfect the urine. If you can disinfect an excretion like the urine by administering antiseptics internally, why won't the same drug destroy the micro-organism in the bowel, the blood or any tissue of the body? Why does the drug possess more antiseptic power when in the urine than it would in the blood?

Is it not more rational to say that a drug given internally is more likely to destroy a bacillus in the bowel than to say it will destroy it after being excreted in the urine, and when Dr. Osler recommends Urotropin to disinfect the urine, he contradicts himself in his argument against intestinal antiseptics, and consequently his logic is false.

There are a number of drugs which can be given in harmless doses that will prevent fermentation and putrefaction of the bowel contents, and consequently the formation of gas. Park says: "Man forms in his liver enough poison to kill him in eight hours, and the urine eliminates but one-half." Bile is nine times as poisonous per volume as urine. Does this not show to any unprejudiced mind the importance of keeping the secretions and excretions in an active condition?

We all know that in fever destructive tissue metamorphosis is taking place more rapidly than in health. More poisons are being manufactured and at the same time, as a rule, functional activity of the emunctories—the liver, kidneys and skin—is lessened; consequently we have the abnormal condition of increased production of poison and diminished elimination, and hence the therapeutic indication becomes very plain. If elimination from the system of these poisons is so necessary in health, how much more necessary does it become in a disease produced by a germ which is constantly manufacturing toxins of unknown chemical composition and lethal power and sending them to every part of the human system through the medium of the circulation and the lymphatic current.

The bacteriologist tells us it is not the germ itself which gives rise to the symptoms, but it is the poison produced by the germs (toxins), and this exegesis of the subject is largely borne out by the fact that few germs are found in the blood; consequently some other agent must be the active factor in the production of symptoms.

Horton-Smith, in the Gouldstonian lectures, showed that "in twelve cases of fatal typhoid fever coming to post-mortem examination, the blood in five was sterile; in two it contained typhoid bacilli; in one streptococci and staphylococci; in two the bacillus coli and

in two the bacillus coli with proteus." Out of thirty cases, including his own, the typhoid bacilli was found only in nine. These observations certainly prove two conditions which are, first, that the patient may die with typhoid fever and no germs can be found in the blood, and the other, that of the different varieties of germs found in the blood after death in typhoid fever patients, the bacillus of Eberth is found in less than one-third of the cases and other germs of the different varieties are found in two-thirds of the cases. This element of mixed infection is, in my opinion, responsible for the great variation in symptoms in this disease and accounts for that significant fact which we often hear from physicians, that they scarcely meet with two cases presenting just exactly the same clinical aspect. It is also a forecast of the difficulty we will meet with in attempting to get a successful anti-toxin for typhoid.

It remains for the physiologic chemist to supply the missing link and bridge the chasm which now exists between the established bacteriologic science and a rational and scientific therapy. Every new discovery is attended with its accompanying evil, and the glaring one connected with the valuable enunciation of Koch and Lister is the fact that it has resulted in the production of so many therapeutic nihilists. Some of the best men in the profession, in their eagerness to join the procession in the study of these new and fascinating caustive factors of disease, have overlooked the importance of the thorough knowledge of the physiologic and pathologic chemistry of the human system. The time is now ripe for the pendulum to swing in the opposite direction and let us learn not only of the products of the germ but the complex chemical poisons which are constantly being generated in nature's own laboratory, the human system, a thorough knowledge of which the general practitioner is now seeking, and which will result in the solution of some of the intricate problems of modern medical science. In this connection I desire to present a few clinical facts which show the ridiculous absurdity of some modern theories regarding the administration of drugs in infectious diseases. The modern teaching is all to the effect that infectious diseases run a definite and specific course and cannot be influenced by medication. To this oft-repeated error I desire to enter a protest based on clinical experience.

The man who says you cannot favorably influence the lethal tendency of the caustive factors in typhoid fever by medication has simply not had experience with the proper drug. He belongs to that class of medical men who consider it unscientific to storm the domain of a bacillus with a dose of medicine and has practically discarded his old friend, the "Materia Medica." He contents himself by sitting down by the placid waters of expectancy and watching the life of his patient slowly but surely ebb away as a result, not only of the ravages of the supposed germ which is causing the disease, but the chemical toxins as a result of tissue metabolism as well.

With this explanation of what I consider to be the real condition of the patient in typhoid fever, we will see how we can best meet the plain indication for elimination. Some of those who have opposed this treatment maintain that the germ is found in the walls of the bowels and lymphatic glands and other tissues of the body; consequently it cannot be reached by any drug. If they will but review their Materia Medica, they will find that mercury is absorbed into the blood and carried to the remotest part of the system, and is found in the secretions and excretions, even the saliva, the semen and the milk from the mammary gland. So it is immaterial in what tissue the germ may be found, whether the roots of the hair, the tips of the fingers, the spleen or lymphatic glands, it cannot escape the influence of mercury when given internally.

Is mercury not a specific for that disease which is typical of the class of constitutional disease, syphilis? In controlling this disease does not mercury go to every part of the system? I maintain it is more rational to attempt to reach a germ and its products in whatever tissue the fancy of my opponents may dictate by the administration of mercury internally, than it is to reach the same by the application of cold water to the skin, but it is as important to know how to give mercury in typhoid as it is in syphilis. Bad results will follow improper administration in either disease, but that in no sense lessens the therapeutic value of the drug. I have used and advocated mercury because it has given me the best results. I know of no other constitutional remedy that will thoroughly stimulate the activity of the emunctories.

We should not be wedded to any one drug or combination of remedies, but should constantly keep in view the object to be accomplished, that is elimination. Any harmless procedure that will aid in securing elimination is to be commended. I now use in all my cases, normal salt solution per rectum, and I find it the most efficient means of securing prompt action of the skin and kidneys, and I cannot too strongly emphasize the importance of these two emunctories, and especially the kidneys, in typhoid. In profound depression, after hemorrhages and in some cases of low muttering delirium, I immediately resort to the subcutaneous administration of salt solution. I direct that the patient be sponged with water at a temperature most agreeable to him, with brisk rubbing of the skin to stimulate the nervous system. In no case have I had to resort to antipyretics of any sort after two or three days of treatment, and in very few cases is it necessary with this treatment to use alcohol in any form.

Some of the patients go through the disease without the necessity of strychnine. Time forbids me going into details in regard to diet, but as a rule they digest and assimilate more with this treatment than any other plan.

I will briefly repeat the treatment which I recommended in a paper read before this Association one year ago, and I have very few

additions to make to the same. When called to a case of typhoid fever, I usually commence by giving the patient a capsule of calomel ½ grain, guaiacol carbonate 2 grains, podophyllin 1-40 grain, every two hours for twenty-four to forty-eight hours, depending upon the condition of the bowels. I continue this until I have secured four or five intestinal evacuations for two successive days, and then I leave off the calomel and add ½ grain of menthol to the guaiacol and podophyllin. If after discontinuing the calomel there is a tendency (as there frequently is) of the bowels to become inactive, I administer a small dose of salts or Hunyadi water in the morning. I always endeavor to secure at least two or more evacuations daily, depending upon the temperature and condition of the bowels. If after three or four days of treatment, the temperature remains high or rises after having remained stationary, I again resort to the calomel as before for twenty-four hours, or less, as necessary, and it invariably reduces the temperature and results in a general improvement in the patient's condition. I continue the administration of guaiacol and menthol throughout the course of the disease.

Guaiacol carbonate, aside from its antiseptic effect in preventing intestinal putrefaction, seems to have some favorable influence over the disease. Its well-known beneficial effect in tuberculosis strengthens the declaration that it would be beneficial in typhoid.

This is the treatment as I use it in the majority of cases, but I wish it distinctly understood that it is not routine, and that the size and dose and frequency of administration must be varied to suit the case, and the physician at the bedside must determine this fact.

Now to the point that typhoid can be influenced by medication. I have, up to the present time, treated thirty-five cases without a death and in every single case the temperature reached normal by the morning of the fourteenth day without the use of antipyretics. Some of them as early as the tenth, eleventh and twelfth days.

In a few cases it never went above normal again; in the majority of them it would rise a degree, or perhaps a degree and a half, in the afternoon, but the convincing fact is, that the disease was always under control by the fourteenth day, and its course and severity mitigated.

These are not theoretical deductions reached by following in the footsteps of some erroneous text-book writer, nor have they fallen from the lips of some college professor whose verbosity far exceeds his logic, but it is indubitable clinical evidence gleaned from the bedside of the patient.

The fact that in these thirty-five cases there developed no complication during the course of the treatment is sufficient evidence of its efficacy to convince any unprejudiced mind. Hemorrhage only occurred twice, and then very light. In cases where I have been called in consultation, and complications were already present, they speedily passed away under the influence of this treatment.

In conclusion, I will say that the efficacy of this treatment as demonstrated by the clinical results are the rocky shores of truth against which the fleeing and effervescing waves of the narrow-minded and prejudiced will forever beat in vain. It is too well established with the thinking members of the profession, for its solid foundation ever to be underminded by men who use the flimsy argument, "I do not believe in it."

SAVANNAH MEDICAL SOCIETY.

Stated Meeting, November 29th, 1901, *at Dr. Geo. M. Norton's office, Dr. Ralston Lattimore, Vice-President, in the chair.*

Dr. Simmons read the paper of the evening, reporting a case of Functional Albuminuria which he has had under observation for three years. It will appears in the January issue of the JOURNAL.

The reading of Dr. Simmons led to an animated discussion as to the relationship existing between obesity and albuminuria.

Dr. Cort in stated that he had recently had several cases of this character under treatment, and having been unable to diagnose any organic lesion had concluded that the albuminuria was functional and co-existent with the patient's weight.

Dr. Lattimore suggested the advisability of persistently subjecting the urine of this class of patients to repeated microscopical examinations, until such a time when the presence or absence of cast could be definitely determined, the treatment subsequently suggesting itself.

Dr. White maintained that a pure hyaline cast could be found in any functional kidney trouble.

Dr. Simmons defined the position of life insurance companies on albuminuria.

Dr. Corbin did not think that as much importance is now attached to the mere presence of albumen in the urine by the insurance companies as formerly, in view of the fact that an applicant having no trace left after an interval of six months will, all things being equal, be accepted.

Dr. Thomson presented a case weighing approximately two hundred pounds and measuring about 5 feet 7½ inches, in whose urine albumen had been detected no less than four times within the last three years, and in which the microscope had failed to elicit any casts.

Dr. Graham suggested athletic exercise, training, or a vigorous life as conservative factors in the production of albuminuria, and emphasized the presence of a retinitis as pathognomonic to nephritis.

Dr. White presented a tumor over the pylorus which on examination proved to be an inflammatory mass surrounding a probable ulcer that, having broken down, had become walled off.

Dr. Graham related a case of tumor in conjunction with an enormously dilated stomach, the dilatation extending to the symphysis. The tumor proved a carcinoma.

Dr. Simmons spoke of having recently had an umbilical hernia in an infant at birth. An operation was done, and successfully, but the baby died ten days later.

Dr. Hiers showed, in a female, an abnormality in the form of a bifurcated uvula.

Dr. Graham reported a very interesting case of abscess of the brain. Operation, with marked improvement of symptoms.

Dr. Fitch brought to the notice of the Society a case recently occurring in his practice, presenting a fractured clavicle and scapular, and fracture at base of skull, resulting from a fall. Patient remained unconscious for a week; total loss of sensation for first few days; power of speech and mental faculties likewise abated. After two months' treatment on expectant plan patient greatly improved, able to walk around, power of speech returned and mental faculties almost normal.

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Georgia Journal of Medicine and Surgery.

EDITED BY

St. J. B. GRAHAM, M. D. W. B. FITCH, M. D.

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SECRETARIES OF MEDICAL SOCIETIES will do us a favor by keeping us informed of dates of meetings of same, etc

VOLUME X.

It is not without some degree of pardonable pride—with a feeling of something achieved that we present this issue the last number of Volume IX. To our readers and critics, who recall our first issues, we leave the comparison. In the beginning our publication was small and contained less advertising than we carry at present. To-day we print about 80 pages of text each issue, and number among our advertisers a large number of the best and most ethical advertisers of the United States. We feel that it is not boasting on our part when we say THE JOURNAL has steadily improved from the beginning, and with an earnest effort on our part we trust that its upward progress will continue.

We are grateful to the physicians of this territory who, by their contributions and subscriptions, have aided us in bringing THE JOURNAL to its present popularity. We also are under obligations to the reputable advertising firms who have so liberally patronized THE JOURNAL. But "past favors will not suffice for present needs." We begin the Tenth Volume with greatly enlarged views, improved methods and more determination than ever before to make this the best medical journal published in the South; and to accomplish this we will require the assistance and co-operation of all our friends, and this we crave and expect to have. It has been the policy of THE GEORGIA JOURNAL OF MEDICINE AND SUEGERY to publish a periodica

especially suited to the needs of the busy practitioners of the South, and from the encouraging letters received we are led to believe that success has crowned our efforts.

During our past we have gained new friends with each month's issue, and the number of our bona fide subscribers has increased steadily, and while we do not desire any member of the profession to become our representative, still we trust they will not fail to give us the benefit of a favorable remark to his neighbor, non-subscriber, should the occasion arise, and he feel that we are worthy of it. We trust to make THE JOURNAL as practical and as instructive as possible for the whole medical profession of this territory, and invite at all times any contribution in the way of practical papers, interesting news items, and communications of interest to the medical profession. And by the united efforts of the physicians of this great State we promise, as far as possible, to make the tenth volume of THE GEORGIA JOURNAL OF MEDICINE AND SURGERY the best in its existence.

DIPHTHERIA ANTITOXIN HARMLESS.

AS UNWISE TO CONDEMN ANTITOXIN AS TO PREVENT STEAMSHIPS RUNNING ON ACCOUNT OF ACCIDENTS.

The recent unfortunate occurrence of fatal cases of lockjaw in St. Louis, in patients who had been injected with diphtheria antitoxin manufactured by the St. Louis Board of Health, is particularly lamentable because of its effect of prejudicing the public mind against a most valuable remedy. The investigation proved that the antitoxin employed was made by the St. Louis Board of Health and was contaminated, not by spores or germs of tetanus, but by tetanus toxin already formed. The presence of this toxin was either due to the neglect of a very simple procedure which should be invariably practiced in all properly conducted antitoxin laboratories—this procedure consists in the previous immunization of all horses employed by means of tetanus antitoxin, or the contamination of the serum after its preparation.

Tetanus and diphtheria are two separate and distinct diseases and have nothing in common. It has been unquestionably proven to the satisfaction of all scientific medical men that tetanus is caused by one poison or toxin, and diphtheria by an entirely different toxin. It has been equally well established that tetanus antitoxin will always prevent the development of tetanus, and that diphtheria antitoxin is a likewise certain preventive of and cure for diphtheria. One experience will serve to illustrate the preventive value of tetanus antitoxin, which experience was reported by Dr. Lernard Pearson, State Vetenarian for Pennsylvania. Dr. Pearson was consulted by the Lehigh Valley Coal Co., in whose mines large numbers of horses and mules are employed. This company experienced severe finan-

cial losses by the death from tetanus of many of these animals—loss from tetanus being as high as thirty animals per month. This company, on the advice of Dr. Pearson, adopted the routine practice of injecting each of these animals with an immunizing dose of tetanus antitoxin, since which time there have been no cases of tetanus among their animals. This is the invariable experience the world over with the use of tetanus antitoxin to prevent tetanus. The manufacturers of antitoxin have availed themselves of this fact, as that all horses used for the production of diphtheria antitoxin are constantly kept immunized against tetanus; consequently, *properly prepared diphtheria antitoxin cannot cause tetanus in the human being.* To prevent the possibility of infection of antitoxin after it is prepared it is rendered antiseptic by the addition of a harmless germicide, so that even should the antitoxin be carelessly used, no germs could live in it and its injection would prove absolutely harmless. It is because of the neglect of these precautions that tetanus has occurred in St. Louis.

The report of the committee of bacteriologists who have been engaged in the study of the fourteen (14) cases of lockjaw—tetanus—which occurred in St. Louis recently following the administration of diphtheria antitoxin, while outspoken in placing the blame upon the authorities under whose directions the antitoxin was prepared is reassuring to those who may have been tempted to doubt our bacteriological methods in view of the lamentable results following the use of diphtheria antitoxin in the St. Louis cases. This committee, whose report was published in N. Y. Medical Journal, found that the deaths were caused, not by germs or spores of tetanus, but by the introduction of *tetanus toxin* already formed. A careful test of the toxicity of the serum showed that the dose of serum (ten cubic centimetres) contained a little more than a fatal dose of tetanus toxins for a child weighing 50 pounds. The committee specifically charge the health department with having issued some of the antitoxin drawn on September 30th from a horse which on October 2nd showed signs and symptoms of tetanus beyond recovery and was ordered killed, and it is further charged that a portion of the serum labeled as having been drawn on August 24th was in fact drawn on September 30th. Serum dated October 23d came into possession of the committee on November 1st, an interval too brief for any animal experiments to have been made with it, and this committee is of the opinion that the serum drawn on September 30th may have been issued before there was time to perform the simple tests necessary to determine its antitoxic potency.

In all of this there is nothing calculated to shake one's faith in our bacteriological methods. The errors discovered by the committee are errors of carelessness and not of ignorance. No hitherto unforeseen dangers were discovered in the investigation, but the accuracy and reliability of the results obtainable by the modern bacteriologist were admirably illustrated by the character of the work done

by the committee. The valuable lesson taught by this sad occurrence is the need for the use of careful, painstaking, scientific methods in every step in the process of preparing these patent remedies, and, we believe, that this work should be properly left to private enterprise and not to public political officials. If the diphtheria antitoxin recently used in St. Louis had come from the laboratories of the H. K. Mulford Co., in Philadelphia, or from Parke, Davis & Co., Detroit, instead of from the poor house farm of the municipal authorities (the Board of Health) of St. Louis, the service of this committee of expert bacteriologists (Dr. B. Meade Balton, Dr. E. C. Walden and Dr. Carl Fisch) would, in all probability, have not been called for.

Antitoxin, as supplied by manufacturing houses, cannot, by its very method of production, be anything but antitoxin—live germs of any of the diseases are not injected into the horses. The essential differences between the antitoxin prepared by manufacturing houses and that produced by municipal governments is that in the former instance it is prepared under ideal, scientific conditions, while in the latter it is but a small incident in a political organization; it is difficult enough to try to keep politics pure, *but it is an insurmountable impossibility to produce pure political antitoxin.*

Since this most unfortunate accident is likely to create a certain amount of prejudice in the public mind against the use of diphtheria antitoxin, it behooves the medical profession to earnestly strive against the growth of any such prejudice. Diphtheria antitoxin is one of the most valuable specific therapeutic agents at our command.

EDITORS' TABLE.

The Antikamnia Chemical Company's New Laboratory.—Frank A. Ruf, President and Treasurer of The Antikamnia Chemical Company, has just purchased a lot 80x109 feet, on the northwest corner of 22nd and Pine streets, St. Louis, for $20,000.00 cash, on which his company will begin the erection, early in spring, of a new "Antikamnia Laboratory," five stories high, covering the entire lot. The improvements will cost about $45,000.00 irrespective of the laboratory apparatus and appliances which will be of most approved pattern, from Darmstadt, Germany. The offices and various departments will be fitted with all modern conveniences, making the whole plant one of the most complete specialty laboratories in the United States.

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NOTICE.—SANDER & SONS' EUCALYPTOL.—Apply to Dr. Sander, Belle Plaine, Iowa, for gratis-supplied sample and literature on Sanders' Eucalyptol. Meyer Bros Drug Co., St. Louis, Mo., sole agents.

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We ask attention to H. K. Mulford Company's advertisement on second page (top position) cover. The serums and vaccine sent out from their laboratories are pure and free from *tetanus toxines*.

NECROLOGY.

HALL OF THE DUVAL COUNTY MEDICAL SOCIETY,
JACKSONVILLE, FLORIDA, Nov. 5th, 1901.

WHEREAS, Doctor Richard Berrian Burroughs, a member of the Duval County Medical Society, departed this life on September 11th, 1901, it is fitting that this Society place on record a memorial to our deceased confrère and fellow practitioner.

Richard Berrian Burroughs was born at Savannah, Ga., January 19th, 1833; graduated in medicine in 1856, practicing first in Georgia and later in Tallahassee, Fla. At the beginning of the Civil War he was commissioned Assistant Surgeon in the Confederate Army, serving on post duty in Georgia, later with Fourth Georgia Cavalry, and also with the Second Florida Cavalry. After the war he became a resident of Jacksonville, Fla., following his chosen profession, the duties of which he discharged acceptably and conscientiously. He filled the position of President of this Society and that of the Florida Medical Association in a most efficient and creditable manner. He was Chief Surgeon of the Florida and Peninsular Railroad for a number of years, and was serving this position of the Seaboard Air Line Railroad at the time of his death. Doctor Burroughs was genial, kind and considerate of others, beloved by his patients and honored by his profession.

Resolved, That in the death of Doctor Burroughs this Society has sustained the loss of one of its oldest and respected members, and the profession of Jacksonville one of its faithful practitioners.

Resolved, That this memorial be spread upon the minutes of this Society, that a copy be furnished the city press for publication and one sent to the family of the deceased.

NEW BOOKS.

FROM LEA BROTHERS & CO.

A Manual of Surgical Treatment—By W. Watson Cheyne, C.B., M.B., F.R.C.S., Professor of Surgery in Kings College, London; Surgeon to Kings College Hospital and the Children's Hospital, Paddington Green, and F. F. Burghard, M.D. and M.S., Lond. Teacher of Practical Surgery in Kings College, London; Surgeon to Kings College Hospital, Paddington Green, etc., in seven volumes. Volume V—The Treatment of the Surgical Affections of the Head, Face, Jaws, Lips, Larynx and Trachea, and the Intrinsic Diseases of the Nose, Ear and Larynx, by H. Lambert Lack, M.D., F.R.C.S., Surgeon to the Hospital for Diseases of the Throat, Golden Square, and to the Throat and Ear Department, the Children's Hospital, Paddington Green. Cloth Bindings. 458 pages with 145 illustrations. Cloth, $5.00 net. Lea Brothers & Co., Philadelphia and New York.

The subject of surgery covers such a widely diversified branch of medicine that any work attempting to deal with it in an exhaustive manner must necessarily be large and unwieldly and suitable only for purposes of reference, or for those who devote their whole time and attention to this study. The authors, realizing the comprehensiveness of such large works, have thought it wise to prepare in a series of manuals containing the literature of the subject in textbooks of convenient size, each covering certain branches of the subject.

This volume (5) deals with the "Treatment of the Surgical Affections of the Head, Face, Jaws, Lips, Larynx and Trachea, and the Intrinsic Diseases of the Nose, Ear and Larynx." The editors of this Manual consigned the authorship of a large part of this volume to H. Lambert Lack, M.D., F.R.C.S.—especially that part devoted to the "Intrinsic Diseases of the Nose, Ear and Larynx." Dr. Arthur Whitfield, in the section on *Moles*, wrote the account of "electrolysis for superfluous hairs." This volume is indeed of special interest to the rhinologist and laryngologist; but the descriptions of the surgical treatment of diseases and injuries of these parts are so clearly and plainly written, with a profusion of well drawn illustrations to assist the text, that the work becomes also of essential interest to the general surgeon as well—especially when he lives remotely from the specialist. But it contains descriptions of much more than belongs to the specialist in the line above indicated. It deals with wounds and affections of the scalp, of the skull, with intra-cranial injuries and suppuration, including concussion, contusion and compression of the brain, with hernia cerebri, tuberculous meningitis, hydrocephalus, facal epilepsy, and many other conditions of the part. Trigeminal neuralgia receives the consideration of an entire chapter. Plastic surgery of the face, including hare-lip and cleft palate, have the space of two chapters. In short, all of the generally recognized surgical diseases of the head are treated of in this volume. As this Manual of seven volumes approaches completion, the purchaser finds that he has an almost complete library of *surgical treatment*, prepared by authors each eminent in his field. Each volume is well indexed as to its contents. Enough of causation, symptomatology, etc., is introduced in the text to be a guide to diagnosis of the conditions requiring surgical treatment. We very highly esteem the volume as being a practical, helpful guide.

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Essentials of Physiology.—Prepared especially for Students of Medicine, and arranged with questions following each chapter. By Sidney P. Budgett, M.D., Professor of Physiology, Medical Department of Washington University, St. Louis. 16mo volume of 233 pages, finely illustrated with many full-page half-tones. Philadelphia and London: W. B. Saunders & Co., 1901. Cloth, $1.00 net.

This is an entirely new work and a worthy accession to Saunders' excellent series of Question Compends. It aims to furnish material with which students may lay a broad foundation for later amplification, and to serve as an aid to an intelligent consultation of the more elaborate text-book. The subject of Physiology is covered completely, and, the author of the work being a teacher of wide experience, the salient points are particularly emphasized. An important feature is the series of well-selected questions following each chapter, summarizing what has previously been read, and at the same time serving to fix the essential facts in the mind. Nearly all the illustrations are full-page half-tones, and have been selected with especial thought of the student's needs. In every way the work is all that could be desired as a student's aid.

The Four Epochs of Woman's Life—A Student in Hygiene. By Anna M. Galbraith, M.D., Author of "Hygiene and Physical Culture for Women;" Fellow of the New York Academy of Medicine, etc. With an Introductory Note by John H. Musser, M.D., Professor of Clinical Medicine, University of Pennsylvania. 12mo volume of 200 pages. Philadelphia and London: W. B. Saunders & Co., 1901. Cloth, $1.25 net.

Women have at last awakened to a sense of the penalties they have paid for their ignorance of those laws of nature which govern their physical being, and to feel keenly the necessity for instruction in the fundamental principles which underlie the epochs of their lives.

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In this instructive work are stated, in a modest, pleasing and conclusive manner, those truths of which every woman should have a thorough knowledge. Written as it is for the laity, the subject is discussed in clear, comprehensive language, readily grasped even by those most unfamiliar with medical subjects. A valuable and commendable feature of this handy volume of instructive information is a comprehensive glossary of those medical terms necessary to a thorough understanding of the subject under discussion. Without doubt, it is a book that should receive the thoughful consideration of every woman.

FROM J. B. LIPPINCOTT CO.

International Clinics.—A Quarterly of Clinical Lectures and Especially Prepared Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases

of the Eye, Ear, Nose and Throat, Etc. Edited by Henry W. Cattell, A.M., M.D., of Philadelphia, with the collaboration of John B. Murphy, M.D., of Chicago; Alexander D. Blackader, M.D., of Montreal; H. C. Wood M.D., Philadelphia; T. M. Rotch, M.D., of Boston; E. Landolt, M.D., of Paris; Thomas G. Morton, M.D., and Charles H. Reed, M.D, of Philadelphia; J. W. Ballantyne, M.D., of Edinburgh, and John Harold, M.D., of London. Volume III. Eleventh Series. Philadelphia: J. B. Lippincott Company. 1901. Price, cloth, $2.00 each; half leather, $2.25 each.

The contents of this volume embraces Medicine, Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose and Throat.

The contributors of prominence are Drs. Edebohls and Comac, of New York; Solomon Solis Cohen and John B. Deaver, of Philadelphia; Cheatham, of Louisville, and F. D. Crothers, of Hartford; Professors Julien and Landolt, of Paris; Battle and Abercombie, of London; Pich, of Austria; Rencall, of the University of Rome.

This quarterly makes unquestionably one of the most complete and most reliable reviews of the advances in scientific medical literature with special reference to its practical applications that has yet been published. The editor has selected the very best contributors—men who know their business in their different departments and who do it well and thoroughly. They are men of experience and reputation, whose opinions are respected.

No one can but be interested with the character of this work. Everything is said in good, easy style, and is something new. No superfluous material is given—only that which is concentrated and can be used with benefit. We congratulate the editor, the contributors and publishers upon the most excellent manner in which they have issued International Clinics.

FROM P. BLAKISTON'S SON & CO.

Diseases of the Digestive Organs in Infancy and Childhood.—With chapters on the diet and general management of children, and massage in pediatrics. By Louis Starr, M.D., late clinical professor of diseases of children in the Hospital of the University of Pennsylvania; consulting pediatrist to the Maternity Hospital, Philadelphia, etc. Third edition, rewritten and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901. Price, $3.00 net.

In the ten years that have elapsed since the second edition of this book appeared, the changes in regard to many matters relating to pediatrics have been so great as to render the older volume almost obsolete. The present edition is therefore entirely rewritten.

In this revision the author has endeavored as far as possible to bring the work up abreast with the latest teachings with this line of work and at the same time added a number of new chapters and omitted much obsolete matter. Among the additions the most im-

portant are to the sections on Simple Atrophy, Infantile Scurvy, Rickets, Lithemia, Infectious Follicular Tonsilitis, Nasopharyngeal, Adenoid Hypercrophy and Appendicitis. Extensive changes are made in the section on Infant Feeding.

The first 100 pages are devoted to the general management of the child—information of a kind more often presented to nurses and mothers than to physicians, but most valuable to the young practitioner. Then follow chapters on Scurvy, Rickets, and the various diseases of the digestive organs. The author's wide clinical experience forms the basis upon which the book is constructed and gives it a real value to the physician and pediatrist.

An American Text-Book of Pathology.—Edited by Ludvig Hektoen, M.D., Professor of Pathology, Rush Medical College, Chicago; and David Riesman, M.D., Professor of Clinical Medicine, Philadelphia Polyclinic. Handsome imperial octavo of 1.245 pages, 443 illustrations, 66 of them in colors. Philadelphia and London: W. B. Saunders & Co., 1901. Cloth, $7.50; sheep or half morocco, $8.50 net.

The importance of the part taken by the science of pathology in the recent wonderful advances in practical medicine is now generally recognized. It is universally conceded that he who would be a good diagnostician and therapist must understand disease—must know pathology. The present work is the most representative treatise on the subject that has appeared in English. It furnishes practitioners and students with a comprehensive text-book on the essential principles and facts in General Pathology and Pathologic Anatomy, with especial emphasis on the relations of the latter to practical medicine. Each section is treated by a specialist who is thoroughly familiar with his particular subject, and can best frame the theories and conclusions in an authoritative form.

Prominent among the contributors are: Drs. Lewellys Barker, Richard C. Cabott, Joseph Collins, Ludvig Hektoen, Joseph McFarland, F. H. Montgomery, A. P. Ohlmacher, David Riesman, J. C. Warren and A. C. Warthen.

The illustrations, which are nearly all original and of which 66 are in colors, are unsurpassed in beauty by those in any similar work in the English language. In fact, the pictorial feature of the work forms a complete atlas of pathologic anatomy and histology.

Messrs. W. B. Saunders & Co. give the work all the art in bookmaking for which they are justly famous. It is the best work on Pathology in the English language.

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THERAPEUTICS

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ATROPINE TREATMENT OF INTESTINAL OBSTRUCTION.—Polach (Wien. Klin. Woch., April 25, 1901) reports the case of a thin, anemic woman, aged sixty-eight years, with a previous history of constipation, that presented herself for treatment after two days of absolute constipation. The urine contained some albumin. High glycerin enemas were tried with absolutely no effect, and her condition became steadily worse. On the fifth day the patient went into collapse; subnormal temperature, pulse 110 to 120, cold extremities, dry tongue, extreme prostration, and an entire absence of peristalsis. The patient was so weak that operation was out of the question, so as a last resort a hypodermic injection of .002 grain of atropine sulphate was given. She soon reacted, and the next day the injection was repeated, after which she passed some flatus and feces. Her condition was so much improved that she was able to retain champagne and other liquid nourishment. She continued to steadily improve, the following day had a large movement, and the stomach became again perfectly retentive; the muscular rigidity and tympany disappeared, as did also the albumin from the urine. When seen ten days later her condition was in every way normal.—*Therapeutic Gazette.*

TURPENTINE INJECTIONS IN SEPTIC INFECTIONS.—Hypodermic injections of turpentine are reported to have cured several cases of septic infection. Fochier, said in the Medical Standard for June, 1901, which quotes Telburg-Hofman on the subject, to be the first advocate of the treatment, found that the production of a local suppuration with the turpentine reduced the general infection.

The injections are made into the thigh, and the pain, which appears sooner than in morphine injections, is very little when the hypodermic needle is well introduced in a cushion of adipose tissue, though in some cases it may be necessary to administer an anodyne. If the injection is made deeper, other signs, as redness of the skin, may appear on the third day or later.

Fochier seldom made more than two injections of from 15 to 25 minims in one case, while Thierry not only injected every other day, but kept the suppuration up by irritation of the wound.—*Therapeutic Gazette.*

Camphor Dressing for Varicose Ulcers.—Camphor is a drug which, for many years, was held in great esteem, especially in extra-professional circles; indeed, the late M. Raspail founded a school of therapeutics which still rejoices in great popularity in France, based on the use of camphor internally and externally as a curative agent. Its anti-spasmodic properties, though well authenticated, have of late fallen into disrepute, or at any rate into disuse, and externally it is only employed in this country in the form of a liniment of which it is but a subsidiary constituent. Two German physicians have recently called attention to the value of camphor dressings in promoting the cicatrisation of varicose ulcers of the legs which are notoriously refractory to treatment. They make use of an ointment containing 2 per cent. of camphor, with from fifteen to twenty parts of oxide of zinc, or, if this be found too irritating, they prescribe a mixture of two parts of camphor with forty parts of zinc oxide, and fifty parts of olive oil. An alternative application is a solution of the drug in spirit, but this must only be applied after the ulcerated surface has been thoroughly cleaned of scabs and crusts of poultices It is asserted that under this treatment the most obstinate ulcer will cicatrise within three weeks, which is more than is claimed for the much lauded oxygen treatment, over which, moreover, it has the advantage of being more generally applicable at a vastly smaller cost.—*The Medical Press.*

The Use of Iodol in the Treatment of Tuberculosis of the Lung. T. Mellor Tyson (Jour. of Tuberculosis, Vol. III., No. 1) says that as preparations containing a moderate amount of iodin employed by innoculation (europhen, 27.6%; iodoform, 33%) have produced beneficial results, it is reasonable to suppose that preparations containing a larger quantity will be still more beneficial. By using inunctions, larger doses can be given. It causes no irritation of the skin, and the digestion is not interfered with. Iodol (88 per cent. iodin) produced marked improvement in the various symptoms; temporary in the advanced cases, but in the incipient cases it continued as long as they were under observation. In some of the incipient cases the cough and expectoration disappeared entirely, while in others they gradually diminished. The greatest change in physical signs was a diminution in intensity in the abnormal breathing sounds. Rales seemed to be markedly diminished, and in some cases to disappear altogether. Weight was increased in all, but it may be because digestion was not interfered with, as it is by nauseous and irritating drugs. All the cases were hospital ones. In addition to the iodol inunctions, they received strychnin, 1-28 gr. t.i.d., with good, nourishing food and proper out-door exercise. The inunctions contain

20 gr. to 1 oz. of olive oil. The quantity rubbed in was 1 dr. t.i.d., increased to ½ oz. gradually, say, by about 1 dr. a week. The rubbing is done by the patient himself, and requires about 10 minutes.

Results of Serum-Therapy and Protective Inoculation for Dysentery.—K. Shiga obtains a serum, as in typhoid fever, cholera, or the plague, from a perfectly immune animal, the horse or ass being preferred. The method of producing immunity in the animal is as follows: A slant agar culture of the bacillus which has been in the incubator for twenty-four hours is scraped off and ground up in an agate mortar; to this is added physiological salt solution, and the mixture is kept for twenty minutes at a temperature of 50° to 60° C. A small dose of this mixture is used for the first subcutaneous injection. The dose is increased from time to time until a certain degree of immunity is established, after which intravenous injection is used. After a high degree of immunity is obtained, the blood is withdrawn three weeks after the last injection, and the serum is then obtained. To this serum, carbolic acid in the proportion of five per cent. is added. Before using serum on a patient, its strength should first be tested on an animal. The method of using the serum is similar to that in other serum treatment. The side of the chest is preferred as the seat of injection. The amount injected in the mild form is from 6 to 10 c.c., while from 15 to 20 c.c is used in the serious form. The serum is readily absorbed within one or two hours, and the point of injection does not usually show any change. There is not very often an eruption following the injection. There are sometimes pains in the joints, and at times these are accompanied by muscular pain. The results of serum treatment are far more favorable than those of medicinal treatment. Even in the most favorable results of the latter the death rate is twice that of the former. The following medicines were used in addition to the serum treatment: calomel or castor-oil was first used to cleanse the bowels, and an enema of salt solution or soda water was afterward used repeatedly. Besides these, dilute hydrochloric acid lemonade, claret, and some alkaline remedies were used.—*The Sei-I-Kwai Med. Journal, Med. Record.*

Cure for Poisonous Snake Bite.—A cure of this description was recorded in the London Times a short time ago by a correspondent, who explains that the medical man in India, having been called to see a coolie woman who had been bitten by a large snake, supposed to be a cobra, injected a full dose of Dr. Calmette's antivenene, but was not sanguine as to the result, the patient's condition being apparently hopeless. The effect of the remedy was marvelous. Consciousness returned in fifteen minutes, and he was so encouraged by the result of the first injection that he decided to give another dose of the serum. It acted like magic, and within three hours of the first injection the patient was well. The operator is satisfied that even in desperate cases Dr. Calmette's serum is a reliable remedy for the bites of poisonous snakes.

Apomorphia: Its Origin and Therapeutics, as Applied in Asphyxia. Drowning, Lightning Stroke, Emetic in Ejecting Poisons from the Stomach, Labor, Fever and Strangulated Hernia.—Pugh (Texas Med. Jour., Int. Med. Mag.) finds apomorphin of value in cases where the act of vomiting empties the chest of its contents, both as to the lungs and heart by the pressure of the diaphragm. This is especially so in cases of drowning or from poisoning from gas. In cases of lightning stroke he thinks the act of vomiting would start the circulation, which is in a state of stasis. At the same time, bleeding could be employed, which might restore the normal equilibrium of the circulation. In cases of obstructed hernia he has given this drug in conjunction with morphin, and the quieting and relaxing effect of the two has brought about the desired result after other treatment had failed.

Andrenalin Chlorid.—Booth (Albany Med. Jour., Int. Med. Mag.) considers that this drug is one of the most valuable ever added to the list of laryngology or rhinology. When the solutions of suprarenal capsule were first employed, the difficulty of preserving it added many failures from its decomposition. Dr. Jokichi Takamine isolated the active principle of the gland, which seems to possess all its virtue and does not undergo decomposition when sterilized. Its solutions are stable, but it does not mix with oils, and therefore it is excluded from the various petroleum preparations. When this drug is applied to the field of operation, considerable shrinkage of the tissue will be noticed, and if cocain is then applied the absorption is decidedly less, and the danger of intoxication is correspondingly decreased. As might be presumed, the hemorrhage during the operation is also decidedly less, but when the tissues regain their normal tone considerably bleeding is apt to follow. This can be obviated by packing the cavity with cotton soaked in a 1-10,000 solution; the best strength to apply before operating is from 1-3.000 to 1-5,000. If this solution is allowed to remain in contact with the tissues too long a slough is apt to follow. This evidently is due to the fact that the vessels are contracted too long and the vitality of the tissue is so reduced that it does not recover. In hydrorrhea a 1-10,000 solution will be found of value and also in singers the use of this strength solution in a downward spray in the larynx will allow the use of the voice in a very short time. Upon the heart its effect is quite marked, and if a few drops of a 1-1,000 solution are placed beneath the tongue of a person under an anesthetic rise of blood-pressure is soon observed. In some there seems to be an intolerance, and the application to the nasal cavities will produce severe sneezing and burning in all the air cells adjoining, severe headache, and injection of the conjunctiva.

INTERNAL MEDICINE AND NEUROLOGY.

UNDER THE CHARGE OF

J. ALLISON HODGES, A. M., M. D.,

PROFESSOR OF NERVOUS AND MENTAL DISEASES, UNIVERSITY COLLEGE OF MEDICINE, RICHMOND, VA

WM. CLIFTON LYLE, M. D.,

INSTRUCTOR IN CHEMISTRY IN THE MEDICAL COLLEGE OF AUGUSTA, AUGUSTA, GA.

R. L. PAYNE, A. M., M. D.,

NORFOLK, VA.

HEART LESIONS OF CHILDHOOD.—Abt (Med., July, 1901) insists on absolute rest in bed as soon as acute endo- or pericarditis is recognized, and it is often useful to apply an ice-bag over the precordium. If the action of the heart is excessive, aconite may be used to quiet it, unless it is contraindicated by cyanosis or dyspnea. With the advent of cardiac dilatation and failing compensation, digitalis, strophanthus and caffein are employed. If a pericardial effusion of large extent is present, aspiration is imperative. The puncture should be made in the fifth interspace a little to the cardiac side of the sternum, the direction of the needle being upward and outward toward the left axilla. After recovery, only very slight exercise should be allowed at first and the patient should be taken out as much as possible. An excellent guide as to cardiac stability in these cases is, to note the position of the apex, quality of the sounds and rapidity of the pulse after prolonged rest, the same to be repeated after moderate exercise, then to compare them. In this latter case, if any displacement of the apex occurs, or if the tones are less distinct than when the patient is at rest, or even if marked acceleration of the pulse occurs, more or less myasthenia cordis exists, and the urgent necessity for restraining the child's activities should be impressed upon the care-takers.—*Int. Med. Mag.*

AN EXPLANATION OF THE VULNERABILITY OF THE APICES IN TUBERCULOSIS OF THE LUNGS.—Colbeck and Pritchard (Lancet, June 8, 1901, p. 1595) calls attention to the generally known fact that the apices are the most vulnerable parts of the lungs, the right being more prone than the left, in the proportion of 3 to 2. The most commonly accepted explanation is, that the upper part of the chest being more fixed and rigid, allows of less movement of the contained lung, yet it is far from being proved that the relative action of the apex is less than that of any other portion. The writers review various other theories, only to discard them, though they admit the possible validity of the view of Wood and Hutchinson. He regards the apices of the lungs, from the morphologic standpoint, as the most unstable, hence they possess less vital resistance. This is quite plausible, but it does not explain the peculiarly constant localization at a point 1 to 1½ inches below the summit of the lung. It is known that the

apex of the lung normally extends into the root of the neck and it is not contained within the thorax, its coverings being muscles, fascia and skin, aided by the sternal end of the clavicle. When this normal support is weakened, inspiration results in more or less sucking in of the apex, and finally an inversion of the normal respiratory rhythm occurs. At that part of the lung where the normal and abnormal rhythm meet a zone of more or less immobility exists. Foreign bodies carried in the inspired air would tend to collect at such a site, this site being 1 to 1½ inches below the apex. That inversion occurs can be demonstrated by ordinary physical signs. At the end of expiration the note obtained in the supraclavicular fossa of such a case is resonant, while at the termination of inspiration the resonance is more or less greatly impaired, in some instances lost altogether. They very properly state that this "very important and suggestive fact" has not received the attention that it deserves.—*Int. Med. Mag.*

THE CONDITION OF THE KIDNEYS WITH REFERENCE TO THE EMPLOYMENT OF DIURETICS.—The Medical News of August 10, 1901, contains an article by Elliott in which he reaches the following conclusions on this subject:

1. Except in the case of the irritant-epithelial diuretics (turpentine, catharides, etc.) the entire class of diuretics may be said to exert their effect upon the urine by acting indirectly through the circulation.

2. Owing to the necessity for sparing the kidneys all irritation, drugs given for diuretic purposes should act indirectly rather than directly, consequently the secretory diuretics are contraindicated in irritative and inflammatory renal conditions.

3. In functional urinary disorders diuretics are mainly useful to overcome concentration and hyperacidity of the urine. To accomplish this, simple diluents and salines are best adapted.

4. In acute nephritis saline diuretics are permissible throughout the entire course of the disease and exert a beneficial influence by increasing elimination and clearing the tubules of inflammatory debris. Subcutaneous saline infusion constitutes our most powerful aid to elimination in desperate cases.

5. In chronic nephritis the cardiovascular diuretics are most useful, owing to the fact that oliguria and dropsy are usually the result of circulatory failure. The dropsy, under these circumstances, being of cardiac origin, may be benefited by cardiovascular stimulants, provided the kidneys are not too badly damaged.

6. Dropsy of purely renal origin is not amenable to favorable influence by diuretics.

7. Although the morbid process in the kidneys may furnish us with our primary inspiration to diuretic medication, it is the condition of the heart and circulatory apparatus in most cases that determines the choice of an agent.

Etiology and Classification of Cirrhoses of the Liver.—Vaughan (Jour. Amer. Med. Assoc., Oct. 5, 1901) calls attention to the fact that many physicians confound atrophic and hypertrophic cirrhosis of the liver. In discussing them, he follows the well-known classification of Charcot into hypertrophic and atrophic and a rare monocellular form observed in congenital syphilis. In *atrophic cirrhosis* the liver is reduced in size and weight; reddish, tending to brown, grey or yellow. Its surface is covered with nodules, which became more prominent on removing the strongly adherent capsule. On section the organ shows a large proportion of connective tissue. Among causes of cirrhosis alcohol holds chief place. Most observers agree that it causes degeneration first in the liver cells, which, being altered, react upon the hepatic parablast. Other well-known etiologic factors are phosphorus, lead, arsenic, syphilis, gout and rheumatism. The degenration begins in the periphery of the lobule and the altered hepatic cells take up less space than healthy cells and become similar in outline to parablastic tissue. This process is like that seen in the change of the cells of the rete malpighii of the skin into the spindle cells of the epidermis. The symptoms are well-known. Ascites and edema due to portal obstruction, large spleen, organic nephritis, which gives at first very little albumin and small hyalin casts. Urea excretion is diminished. There is a marked catarrhal condition of the digestive tract, which usually precedes the cirrhosis and is due to the same cause. There may be icterus, varying in amount according to rapidity of destruction of the liver cells. *Hypertrophic cirrhosis* has a very different aspect. The liver is always larger and heavier than normal. The surface is finely granular, reddish-brown in color, and it is always smooth and rounded in outline. Although no exact etiologic factors have been established, it seems probable that this disease is an infection, possibly from extension of a catarrh along the bile passages from the intestines. The evidence of this is that it often begins as a catarrhal jaundice; that it is accompanied by cholecystitis; that it is a febrile disease with remissions and exacerbations; that it is accompanied by general lymphatic involvement; and that the primary changes occur in the epithelium of the bile ducts. Its pathology differs from that of the atrophic form in the following particulars: 1. There is no destruction of liver cells. 2. The primary changes occur in the epithelium of the ducts. 3. The periportal tissues escape early involvement. *Hypertrophic cirrhosis* occurs in persons under 40 years of age. Icterus and large liver are prominent symptoms. Ascites is rare and but little marked when present. The urine is bile-stained. There are also *mixed* forms which puzzle alike the pathologist and the clinician. In the treatment the possibility of both varieties arising through different processes from the same cause must be considered. The rare syphilitic form need not be discussed at length, owing to the difficult of its diagnosis during life and its high mortality. The treatment in such cases would be that of the primary disease. As to

treatment, stop alcohol, reduce food to a minimum, and give such food as milk and eggs which tax least the liver cells. Calomel, tonics, and dilute hydrochloric acid give good results.

The Diagnosis and Treatment of Round Ulcer of the Stomach.—By Dr. N. S. Davis, Jr. (in Amer. Med., November 9th, N. Y. Med. Jour., Nov. 16th). It is difficult to distinguish some cases of round ulcer from gastralgia, especially from those cases of frequently recurring stomach pain in individuals in whom there is hyperchlorhydria. An excessive secretion of free hydrochloric acid and gastralgia are frequently manifestations of the same neurosis. In these latter cases the pain has not the constant, close relationship to eating that it has in round ulcers. Hæmorrhage never occurs in them. Tenderness is less constant and much less circumscribed, and there are usually numerous symptoms of a nervous origin. In the author's practice, if a patient comes under treatment at the time of the hæmorrhage, forty-eight hours of abstinence is directed, after which is prescribed milk diluted with lime water, in tablespoonful doses every three-quarters of an hour. As a rule, the quantity can be rapidly increased to half a glassful, given at intervals of two hours. If the exclusive milk diet is begun in this way, it is but seldom that large curds form in the stomach. Milk preparations, beef juice, or egg-albumin in water, can also be taken. During convalescence the diet should be graduated—a raw egg in milk, or custard, or scraped meat; later, squab, oysters, fish, zwieback, rice, tapioca, vermicelli, etc. Regular and full movements of the bowels should be insured. Rest and milk diet are the essentials of treatment. By some, all the food is given by the rectum for weeks at a time. A guarded prognosis must always be given, though it is true that in a large majority of cases recovery takes place. Laboratory work is an important, if not an essential, aid in cases of gastric ulcer The author advocates the organization of co-operative laboratories by societies, and controlled and managed by them, but they should be at the disposal of all practitioners. Such co-operative or public laboratories would be as great a stimulus to a better scientific study of cases in all communities, as heretofore hospitals have been where they have been founded.

As regards the therapeutic value of your Pepto-Mangan (Gude) I am of the opinion that it is the best among all iron preparations. It has given excellent service not only in the lighter degrees of chlorosis and anæmia, but also in the severe forms. The preparation was gladly taken by all my patients, without producing disturbances of any kind.

Dr. Adolf Kranz.

Vienna, August 12, 1901.

GENERAL ORTHOPÆDIAC AND GENITO-URINARY SURGERY.

UNDER THE CHARGE OF

WM. H. DOUGHTY, JR., A. B., M. D.

PROFESSOR OF ANATOMY AND CLINICAL SURGERY, MEDICAL DEPARTMENT UNIVERSITY OF GEORGIA AUGUSTA, GA.

HUGH M. TAYLOR M. D.

PROFESSOR OF SURGERY IN THE UNIVERSITY COLLEGE OF MEDICINE, RICHMOND, VA

GEORGE R. WHITE, M. D.,

FORMERLY INSTRUCTOR IN SURGERY N. Y. POST-GRADUATE SCHOOL AND HOSPITAL; LATE ACTING ASST. SURGEON U. S. A., SAVANNAH, GA.

The Journal of the Association of Military Surgeons of the United States, a new magazine devoted to the problems of military surgery, has just come to hand and will continue to be published quarterly during the next year and probably monthly thereafter. The present number is a volume of 224 pages and impresses one with its neat and artistic make-up. The leading articles include Dr. Seaman's paper on the Army Ration in China and the Tropics, and the doctor's much-quoted observations on the Post Exchange. The other leading articles are :

A Plea for Immediate Celiotomy in Penetrating Gunshot Wounds of the Abdomen in War—by Capt. Charles E. Flagg.

Suprapubic Operations for Vericocele—by Major Alfred E. Bradley.

Three Noteworthy Cases of Brain Surgery—by Surgeon G. T. Vaughan.

A Description of the New Regimental Field Equipment—by Maj. J. V. R. Hoff.

The Pennsylvania Brigade Hospital Tent—by Lieut. Herbert A. Arnold.

Some Points in Military Surgical Practice—by Brig. Gen. Jefferson T. Griffith.

The remainer of the space is taken up with lists of members, committees, constitution, necropsies, etc.

The success of the Journal is assured under the able management of Maj. James Evelyn Pilcher (Capt. retired U. S. A.), who is still pleasantly remembered in Savannah from his connection with the Seventh Army Corps during the Spanish-American war. W.

GALL-STONE IN THE COMMON DUCT; ITS FREQUENCY, SYMPTOMS, DIAGNOSIS AND TREATMENT.—Dr. L. H. Dunning, of Indianapolis, read before American Association of Obstetricians and Gynæcologists at Cleveland meeting, in a paper with this title quoted from the recent paper of Mosher, whose compilation of the Johns Hopkins Hospital records showed that gall-stones were present in 6.94 per cent. of our

population, and that in 13 per cent. of all cases of gall stones the calculus was arrested in the common duct. For convenience of description, the author adopted the generally accepted classification of cases of gall-stone in the common duct, namely: 1. The acute form, in which there was acute obstruction, with transient jaundice and the typical gall-stone colic. 2. Chronic obstruction of the common duct from lodgment of a stone somewhere in the course of the duct. The first division represented the old, classical form of bilious colic, and the symptoms were so well known that he did not enumerate them in detail. In chronic obstruction from gall-stones the jaundice was more or less intermittent, and there was pain in the hypochondrium, in the epigastrium, and in the back. The pain was not so severe as an acute obstruction, and was very irregular. It might be located in the epigastric or lumbar region. As a rule, there was absence of a tumor in the gall-bladder region, but there was marked soreness. There was decided loss of weight, and frequently there were chills and intermittent fever.

The Carlsbad course, a sojourn at certain French springs, large draughts of oil, the application of hot fomentations to the hypochondrium, and opiates to relieve pain were all of benefit in the acute cases. The chronic cases were amenable only to surgical treatment. The author cited and remarked upon the various methods of surgical procedure Choledochotomy was shown to be the most approved method, when it was applicable. The middle third of the duct was the point of choice for the incision. When the stone was in the duodenal end of the duct, it could usually be crowded back into the middle portion and removed through an incision in that part. An incision through the cystic duct might be carried onward into and through the common duct, if the upper portion was chosen for the line of incision. Duodenocholedochotomy was applicable to cases of a large fixed stone in the duodenal extremity of the duct. This method caused a higher rate of mortality than simple incision of the choledochus. Only soft stones should be crushed, and needling was unsatisfactory. The writer would reserve cholecystenterostomy in common duct obstruction for those cases in which the patients could not endure the longer pain of choledectotomy.

Early Operations in Appendicitis, and the Method, was the title of a paper read before American Association of Obstetricians and Gynæcologists at Cleveland meeting by Dr. Joseph Price, of Philadelphia. In the preceding three months he had operated in about 100 cases of this disease. Seventy-five per cent. had been managed by open treatment. All of them had been explosive cases, and none of the operations was done on the first or second day. In two ball players the operations were done on the third day. In both cases he found gangrenous appendicitis with perforation and general peritonitis. Both were recognized and could have been operated on twenty-four hours earlier. He was satisfied that there was but one treatment

for this disease—early, clean removal of the appendix. The choice of method should not worry operators. A pair of scissors with needles and fine thread was all that was necessary. The appendix should be cut off level with the cæcum, and the opening closed with fine silk. This summer the operations had been done by him chiefly on patients between the ages of eight and twenty. About seventy-five per cent. were boys—fine athletic chaps—and about twenty-five per cent. girls. A large number of the latter were menstruating at the time of the operation. In some instances it complicated the diagnosis. The disease had been quite common and fatal at summer resorts. A large number of operations had been done at Atlantic City and a few patients had been sent home for operations. The interval operation had done much to mislead the general practitioner, and much to complicate the operation, in which there should be no complications.

A New Method for Coapting Superficial Incised Wounds.—By Arthur G. Bretz, M. D., of Indianapolis, Ind. The method of coapting incised wounds which I will present in this article possesses some originality, and if it has been used or suggested by others I have failed to find any mention made of it in any of the surgical literature of the libraries to which I have had access. That it possesses some merit I am fully convinced, from the results obtained by some of my professional friends and in addition my own experience.

It is, perhaps, adapted more particularly to wounds of the face and scalp, though there is no reason why it may not be used in other regions as well.

The method is very simple and may be described as follows: Given a wound on the forehead, for instance, after cleansing and preparing it in the usual way, dry the adjacent surface thoroughly and then apply a piece of adhesive plaster on either side of the wound, the size of the plaster and the distance from the edge of the wound to be determined by length and character of the same. However, it should be of sufficient width to give ample area for adhesion, which I deem not less than one-fourth of an inch, and not nearer the wound than one-fourth of an inch. Raise the inner edges of the adhesive strips and insert interrupted sutures through them instead of through the skin, draw together and tie. This coapts the edges of the wound even better than stitches through the skin. The wound is then dressed in the usual way.

Among the important advantages which I claim for my methods are the following:

First—It prevents the painful process of inserting stitches, of which all patients have such a dread.

Second—It does away with the possibility of stitch-hole abscess and the trouble caused by particles of sutures being left in the wound on removing the stitches.

Third—It prevents the stitch marks, which always add to the unsightliness of the scar.

Fourth—In cases of wounds inflicted by a blunt instrument which caused bruised tissue immediately surrounding the wound, there are no stitches to tear out of the friable tissue.

There is no puckering between the stitches, the first stitches coapt the edges and the others make the closure permanent. There are many other advantages besides those enumerated above. In the case of semi-lunar or angular wounds, if the central stitch is wrongly located, it may be easily taken out and replaced. The wound is open for inspection and drainage. In the case of superficial wounds this method is especially advantageous. When the wound is united, the adhesive strips should be removed by raising them at their outer edges and pulling toward the wound, or if for any reason it is deemed desirable the stitches may be removed and the adhesive strips remain for a short period. Furthermore, if it is thought best, in order to prevent the slight pressure of the suture on the surface of the wound, the adhesive strips may be placed a little farther from the edges of the wound and a folded strip of iodoform or other gauze placed beneath the sutures on either side of the wound. This does not seem to be necessary. In using this method it is necessary to have the best quality of rubber adhesive plaster, and in no instance have I experienced any difficulty in getting it to adhere to the surface. If any difficulty should arise, it would not be during the operation if the proper precautions are observed and the operator possesses ordinary adeptness, and as far as a later period is concerned, it is evident that the mechanical pressure of the dressing adds to its firmness and permanence.

In case that the surrounding field is a hairy surface, it is probably unnecessary to state that it should be closely shaven.

The ingenuity of the operator using this method will suggest many modifications that will more accurately adapt it to particular cases.

I might report a series of cases in which I have used this method at the Indianapolis City Hospital, in which there has been no failures, but I see nothing to be gained by it, since I believe the subject has been made sufficiently plain. My purpose has been to simply present the modus operandi and its advantages in a general way.

Since this article has been in type I have been informed that the Medical Dial of November, 1900, contained a communication of a few lines only, over the signature of A. N. Bessesen, in which the same principle is involved, differing, however, in technique.—*Jour. Med. and Sci.*

OBSTETRICS AND GYNÆCOLOGY.

UNDER THE CHARGE OF

J. W. LONG, M. D.,

EMERITUS PROFESSOR OF GYNÆCOLOGY, MEDICAL COLLEGE OF VIRGINIA, SALISBURY, N. C.

JOSEPH EVE ALLEN, M. D.,

PROFESSOR OF OBSTETRICS AND PEDIATRICS, MEDICAL DEPARTMENT UNIVERSITY OF GEORGIA AUGUSTA, GA.

WILLIAM S. GARDNER, M. D.,

INSTRUCTOR IN GYNÆCOLOGY IN THE COLLEGE OF PHYSICIANS AND SURGEONS, BALTIMORE, M. D.

EDWARD NICHOLAS LIELL M. D.,

JACKSONVILLE, FLA.

FORMERLY LECTURER GYNECOLOGY NEW YORK POLYCLINIC, AND VISITING GYNECOLOGIST ST. ELIZABETH HOSPITAL, NEW YORK.

THE PREVENTION OF COMPLICATIONS AFTER PERITONEAL SECTION.—Henry T. Byford, M.D., believes in the utility of a systematic method of inducing peristaltic action as soon as possible after peritoneal section for the purpose of preventing intestinal paralysis and adhesions. In an author's abstract (Amer. Jour. of Surg. & Gyn., Sept.) he says that after employing the method for many months with the sole object of reducing mortality, he began to notice that his ordinary cases were doing exceptionally well. There were practically no temperature cases, no crying for morphine, no bloating, and seldom any subsequent pain in the ovarian regions, even when firmly adherent appendages had been removed. Formerly after-treatment was troublesome, and the patient was many months in recovering but now after-treatment became exceedingly monotonous for want of complaint on the part of the patient. Hence he began to use the treatment in simple as well as complicated cases, in order to make the patient more comfortable and to render the convalescence more rapid.

The method consists in administration of four drams of fluid extract of cascara, or some equivalent, two hours before the time set for the operation, dram doses of sulphate of magnesia every hour from the time the patient awakes after the operation, and a high glycerine and water enema (two to four ounces) every two hours, beginning eight hours after her return to bed.

A high glycerin enema may be given before the patient leaves the table after operations in which large adhesions are separated and raw surfaces left. A prompt movement of the bowels and a free passage of flatus not infrequently results from this enema before physic has time to operate. This has become routine practice, in order to save, as far as possible, the trouble connected with giving a nauseated patient the salines and later enemas.

The treatment must, as a rule, not be discontinued until the patient passes flatus, not only with the enemas, but also freely between the enemas, *i. e.*, efficient peristaltic action should continue at intervals. Means must be taken to maintain frequent peristalsis,

and secure a daily evacuation of the bowels after the first days. To this end two drams of sulphate of magnesia or two or three ounces of Hunyadi water must be given night and morning for two weeks, the doses being regulated according to the effect. In this way there is but little chance for the occurrence of adhesions at any time.

In the simpler cases of peritoneal section treated in this way the patient can, without harm, get out of bed in ten or twelve days, if the abdominal incision is entirely healed and properly supported.

The treatment may be somewhat modified to suit different cases. Thus if a patient be in need of a stimulant, add an ounce of whiskey to the enema that is administered on the operating table, viz. one ounce of whiskey, two of glycerine and three of water. In patients who have lost much blood a large, high beef tea enema is given instead, and is repeated every four hours. If the beef tea is made strong enough the enemas will usually, within twenty-four hours, start up vigorous peristaltic action.

If the patient cannot take sulphate of magnesia, an ounce of Hunyadi water, or an ounce and a half of the liquid citrate of magnesia, or half an ounce of the granular citrate may be substituted. In some cases oxgall enemas (a half ounce of inspissated gall to half a pint of water) are used when the glycerine does not act well.—*Med. Review of Reviews.*

Repair of a Complete Laceration of the Perineum in a Girl of Nine Years.—Dr. H. A. Royster of Raleigh, N. C., reported this case before the Southern Surgical and Gynecological Society at Richmond meeting. The laceration was produced by the finger of the obstetrician at patient's birth. The patient was a well-nourished girl of nine years. At her birth her perineum was torn completely through the recto-vaginal septum, and the explanation of this occurrence is stated to be as follows: The child's grandfather, a very aged physician, acted as accoucher. Owing probably to dimmed eyesight and infirmity, a breech presentation was evidently mistaken for a vertex position, and the obstetrician, introducing his finger into what he thought was the child's mouth, but which was really its vagina, exercised traction, and the result was a complete laceration of the baby's perineum. No immediate harm came from the accident, and it was resolved not to attempt a restoration of the injured region until the girl was considerably older. During the fall of 1900, she came first under the observation of Dr. Hubert Haywood, who related the above facts, and kindly referred the patient to the speaker for operation.

The parts on examination showed a quantity of dense scar tissue. The tear extended into the vagina to the depth of a half inch, and the sphincter-ends were plainly seen on either side. No incontinence of fæces had occurred. On November 15, 1900, under chloroform anæsthesia, a butterfly-shaped denudation was made in the vagina and the exposed edges of the rectum pared, taking pains to

dissect out the torn sphincters. The rectal tear was then united with catgut sutures, which were tied inside the bowel and cut short. Silkworm gut was used for closing the vaginal surfaces and bringing together the ends of the sphincter muscle. Perfect apposition was obtained, and rigid asepsis observed in all the details of the technique. In spite of these precautions only partial success resulted, due to the fact that the patient's bowels became unmanageable just at the beginning of the operation, and the denuded area was constantly and unavoidably bathed by a stream of fæces. This unlooked-for disaster was brought about by faulty preparation of the patient before admission. A purgative had been administered the day before, and on the morning of the operation an enema was given, with the report that the bowels had been thoroughly emptied. The continual discharges were a source of much annoyance, but having begun it was considered best to complete the operation. At the end of two weeks it was found that the external sutures did not hold, although union of the upper part of the denuded tissue was secured.

A second operation was attempted April 18, 1901. The same method of procedure was employed, but modified to suit the changed relations. The child was prepared under direct personal supervision, and no fæcal contamination occurred. The parts healed promptly and the result was perfect.

The author could find no parallel to this case in the literature of the subject.

Vaginal Puncture or Incisions for Puriform Disease or Exploratory Purposes are Unsurgical Procedures.—Dr. Joseph Price of Philadelphia, Pa., read a paper with this title before the Southern Surgical and Gynecological Society at Richmond meeting. He said the members were familiar with the results of an ideal and complete suprapubic procedure. He had been asked frequently during the past year to see and re-operate on patients upon whom vaginal incisions or puncture methods had been practiced. In three very recent operations for the removal of pelvic contents, puncture and vaginal incisions complicated the sections that would have been otherwise comparatively easy. The vaginal fixation, closure of the openings, refilling of the puriform or serous sacs, were only local complications; the general condition of the patient became rapidly unfavorable for favorable abdominal work. He was satisfied that the ancient methods of evacuating puriform accumulations, that of cautery or caustics, was much more scientific than the present methods of vaginal incision. Operators who practiced vaginal incisions never know the precise pathological conditions; they puncture or incise a puriform accumulation and guess at a name, ovarian abscess, pus tube, or pelvic abscess; if the fluid evacuated was serous in nature, they called it encysted serous effusion. The probabilities were that it was a dropsy of the tube or hydrosalpinx. Puriform tubes, as large and tortuous as one flexed thumb, should never be overlooked or punctured, in his estimation.

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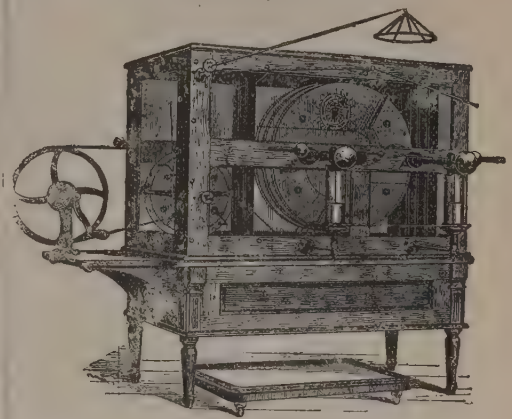

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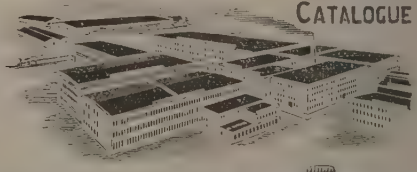

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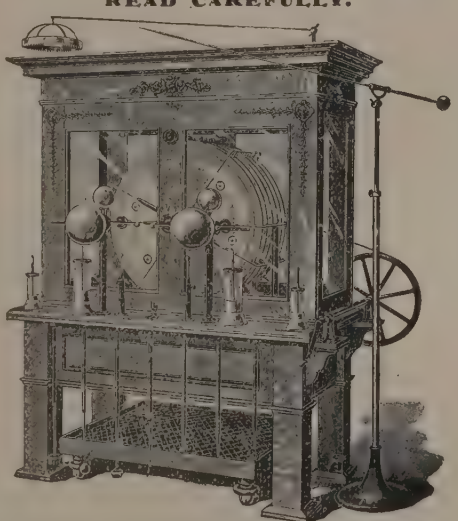

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